

HELMINTHOLOGICAL ABSTRACTS

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Vol. II, No. 4.

215—Agricultural Progress.

- a. HODSON, W. E. H.—“ Hot water treatment and its application to the control of certain plant pests.” x, pp. 180-183. [1933.]

(a) Hodson briefly reviews the utilization of hot water treatment as a means of controlling certain plant diseases caused by fungi, nematodes and mites.

The well known treatment of narcissus bulbs as a means of controlling *Anguillulina dipsaci* is mentioned. Knowledge of the effect on *Aphelenchus fragariae* after treatment of strawberry plants with a view to destroying mites is still incomplete but there is evidence that some degree of control may be effected. *Aphelenchus ritzema-bosi* can be controlled by subjecting the chrysanthemum stools to hot water treatment prior to the formation of the shoots utilized for cuttings.

M.J.T.

216—American Journal of Cancer.

- a. CURTIS, M. R., DUNNING, W. F. & BULLOCK, F. D.—“ Genetic factors in relation to the etiology of malignant tumors.” xvii (4), 894-923. [1933.]

(a) As the result of a detailed statistical study of the relation of malignant complications to cysticercosis in rats, Curtis, Dunning and Bullock are able to say that there are marked strain and family differences in the proportion of individuals which develop both the disease and its malignant complication. The number of parasitic cysts present in the liver is a significant factor in determining the duration of irritation necessary to initiate the development of the sarcoma and the intensity of the disease. Usually only one cyst present becomes malignant; the others remain benign. In certain strains of rats, resistance to *Cysticercus* disease seems to be dominant over susceptibility.

P.A.C.

217—American Journal of Hygiene.

- a. HEADLEE, W. H.—“ Epidemiological studies of helminth infections in an Egyptian village. Soil pollution and soil infestation.” xviii (3), 695-711. [1933.]

(a) From an intensive study of the small Egyptian village of Rushdy Headlee observes that, despite the fact that the habits of the people were favourable to the creation of highly infested areas and to reinfestation, the climatic factors of sparse rainfall, high temperatures and exposure of faeces to direct sunlight resulted in a low hookworm infestation in the village. R.T.L.

218—American Journal of Tropical Medicine.

- a. BECKER, E. R.—“Host-specificity and specificity of animal parasites.” XIII (5), 505-523. [1933.]

(a) Using examples from protozoan, helminth and arthropod parasites, Becker shows that “host specificity” is merely a relative term and concludes that it can be interpreted in terms of known physiological phenomena, not requiring any interpretation involving the possession of any peculiar qualities by either host or parasite.

Factors which affect “host specificity” are temperature, age, food, size and condition of the host, dosage, virulence and sensory faculties of the parasite, the immunity mechanism and the heredity of both host and parasite. P.A.C.

219—Annales de Parasitologie Humaine et Comparée.

- a. POISSON, R.—“Trois nouvelles espèces de nématodes de la cavité générale d'hémiptères aquatiques.” XI (6), 463-466. [1933.]
 b. GEBAUER, O.—“*Ostertagia böhmi* Gebauer 1931 et *Ostertagia spiculoptera* Guschanskaja 1931 sont-ils synonymes ?” XI (6), 467-468. [1933.]

(a) Poisson briefly describes 3 new species of *Bradynema* parasitic in the body cavity of various aquatic Hemiptera.

B. veliae n. sp. was recovered from specimens of the Pond Skater, *Velia currens* Fabr., collected in the neighbourhood of Banyuls, P.-O. Parasitized insects, while paler in colour, remained quite active although crammed with nematodes amongst which viviparous females and larvae of both sexes were distinguishable. Up to 50 adult females have been counted in a single *Velia*. *B. nepae* n. sp. parasitized Water Scorpions of the genus *Nepa*, also recovered from the same locality as the above in September; the worms swarmed in the insect's distended abdomen. Three *Gerris* (*Hygrotrachus*) *najas* de G., taken on the River Massane at Sorrède, P.-O., yielded a single viviparous female of *B. gerroidis* n. sp. which, apart from its much larger size—possibly the result of its solitary existence in the host, resembled *B. veliae* very closely.

J.N.O.

(b) While commending Orloff's revision of the genus *Ostertagia* [see Helm. Abs., II, No. 3c], Gebauer refutes his statement that *O. böhmi* and *O. spiculoptera* are synonymous.

Despite a certain resemblance the author says that *O. böhmi* lacks the chitinous rods found, in the majority of other *Ostertagia* species, in front of the genital opening and that the supporting rays of the accessory bursal membrane form a U, while in *O. spiculoptera* the rods are present and the membrane rays form a V. Owing to Orloff's omission to cite the source of the original description of the latter species Gebauer has been unable to consult the work and disprove the synonymy.

J.N.O.

220—Annales de la Société Belge de Médecine Tropicale.

- a. DUBOIS, A.—“Sur l'existence de *Hépaticola hepatica* au Congo belge.” XIII (3), 259-260. [1933.]

(a) Dubois has found *Hepaticola hepatica* macroscopically in 3 out of 46 rats in the Belgian Congo. The eggs accumulate in vast numbers in the liver parenchyma and appear not to leave the body by way of bile ducts and intestine.

B.G.P.

221—Annali di Medicina Navale e Coloniale.

- a. PANAGIA, A.—“Contributo alla patogenesi della distomatosi.” xxxix (3/4), 575-592. [1933.]

(a) Panagia finds that filtered extracts of *Fasciola hepatica* injected into rabbits have practically no toxic action beyond giving rise to a haemolytic anaemia.

Flukes were ground in a mortar with quartz sand, strained through cloth, diluted with physiological saline in the ratio 1:10, filtered through a chamberland candle (F), and stored in sterile ampoules. Having demonstrated haemolysis *in vitro*, the author tested the extract on rabbits intravenously, subcutaneously, intraperitoneally and orally. The blood [but apparently no other tissues] was repeatedly examined and showed an increase in reticulocytes and a decrease in red cells.

B.G.P.

222—Annals of Applied Biology.

- a. SHARGA, U. S.—“Biology and life history of *Limothrips cerealium* Haliday and *Aptinothrips rufus* Gmelin feeding on Gramineae.” xx (2), 308-326. [1933.]

(a) Sharga, in an account of the life history and habits of two species of Thysanoptera, records the occurrence in *Aptinothrips rufus* of a parasitic nematode which causes sterility in almost all cases and is discussed in a separate paper. [See Helm. Abs., I, No. 150f.]

J.N.O.

223—Annals and Magazine of Natural History.

- a. BAYLIS, H. A.—“On the nematode genus *Proleptus*.” (Ser. 10), xii (70), 325-335. [1933.]
b. BAYLIS, H. A.—“On some parasitic worms from Java, with remarks on the Acanthocephalan genus *Pallisentis*.” (Ser. 10), xii (70), 443-449. [1933.]

(a) Baylis reviews briefly what is known of the various species which have been or may be attributed to the genus *Proleptus* and describes a new form, *Proleptus australis* n. sp., from the intestine of a “tiger-shark” obtained off the Flinders Islands, North Queensland. An extended account of *P. robustus*, which has never been adequately described, is given. The author considers that 6 out of the 12 species attributed to this genus may be recognized with some degree of probability.

J.N.O.

(b) Identifications of several parasitic worms from Java, forwarded by Dr. Prosper Bovien for determination, are given by Baylis along with their respective hosts. The collection comprises 8 nematode species, including *Necator americanus* from the large intestine of a pangolin (*Manis javanicus*), 1 cestode and 3 acanthocephalid species. Amongst the last is *Pallisentis nagpurensis* from the intestine of *Ophiocephalus* sp. and *O. striatus*. In a discussion on the genus *Pallisentis* the author considers that the 4 known

species, all from Oriental freshwater fishes, are very difficult to separate on morphological grounds and doubts whether they are distinct and valid. In a note on the classifications of the Acanthocephala as proposed by various writers, the author suggests that the family Acanthogyridae should be suppressed and all the related genera he discusses (*Pallisentis*, *Farzandia*, *Neosentis*, *Acanthogyrus* and *Quadrigyris*) be included in a group corresponding to the family Quadrigyridae. J.N.O.

224—Annals of Tropical Medicine and Parasitology.

- a. ADAMS, A. R. D. & WEBB, L.—“Two further cases of human infestation with *Bertiella studeri* (Blanchard, 1891) Stiles and Hassall, 1902, with some observations on the probable synonymy of the specimens previously recorded from man.” xxvii (3), 471-475. [1933.]
- b. GIBBINS, E. G. & LOEWENTHAL, L. J. A.—“Cutaneous Onchocerciasis in a *Simulium damnosum*-infested region of Uganda.” xxvii (4), 489-496. [1933.]
- c. PEASTON, H.—“Preliminary note on a focus of *S. mansoni* infection in Sierra Leone.” xxvii (4), 497-499. [1933.]

(a) Two cases of *Bertiella studeri* are recorded from Mauritius by Adams and Webb who endorse the views of Meggitt & Southwell regarding the synonymy of *B. satyri*, *B. mucronata* and *B. polyorchis* with *B. studeri* (Blanchard, 1891). *B. fallax* Meggitt, 1927 from *Cebus capuchinus* is considered to be a valid species. R.T.L.

(b) In 1933 Gibbins and Loewenthal found that practically all the inhabitants of the village of Buwenda near Jinja were affected by lichenification and that 9 out of 13 gave positive results when examined for *Onchocerca* embryos by biopsy. At Bursana and Nagoje in Kyagwe the infection was also prevalent. Routine examination showed that *Onchocerca* nodules were present in about one-third of the cases of lichenification. It is suggested that the skin changes in onchocerciasis are really due to long-standing attacks by the *Simulium* and not to the *Onchocerca* larvae. 14 per cent. of the specimens of *Simulium damnosum* which were examined were found to be infected with embryos. R.T.L.

(c) The endemic centres of *Schistosoma mansoni* in Sierra Leone have not been located. Peaston has found that a considerable number of people in Kabala are infected and that specimens of a *Planorbis* from the Kabala stream harboured cercariae resembling those of human schistosomes. R.T.L.

225—Archiv für Schiffs- und Tropenhygiene.

- a. PETRUSCHEWSKY, G. K. & TARASSOW, V.—“Versuche über die Ansteckung des Menschen mit verschiedenen Fischplerozerkoiden.” xxxvii (8), 370-372. [1933.]
- b. FRÉGONNEAU, W.—“Erfahrungen mit der Fuadin-Behandlung bei Schistosomiasis.” xxxvii (12), 515-528. [1933.]

(a) Petruschewsky and Tarassow point out that the common carriers of *Diphylllobothrium latum* are *Esox lucius*, *Lota lota* and *Perca fluviatilis*. Plerocercoids are frequently found in many other fish, but there is often a doubt as to their identity with the broad tapeworm. They are pointed anteriorly, lack the posterior groove and the transverse markings, and are usually encysted on the outer intestinal wall. They have recently been

designated "Type B." The authors now find that these plerocercoids fail to develop in man, dog or cat. They were derived, for this experiment, from the following fish: *Thymallus thymallus*, *Osmerus eperlanus* and *Coregonus albula*.

B.G.P.

(b) In the Tanga region of East Africa, Frégonneau has used Fuadin in the treatment of 124 cases of schistosomiasis, mostly urinary and mostly in natives. Details and results of treatment are set out in a table covering 10 pages. He finds the drug very satisfactory and (in opposition to Khalil) cheaper to use than tartar emetic in that the cure takes less time and the injections can be given to ambulant patients by trained laymen.

B.G.P.

226—Archiv für Wissenschaftliche und Praktische Tierheilkunde.

- a. LÜHRS, E.—"Bekämpfung der Leberegel und Lungenwurmseuche in den an die See grenzenden Gebieten. Mitteilungen II-V." LXVI (2), 149-167. [1933.]

(a) In this series of papers Lührs completes his scheme for the control of liver-fluke and lung-worm on the coastal plains of Oldenburg [see Helm. Abs. II, No. 67a]. His main contention is that by flooding the drainage ditches with sea-water in winter these prevalent diseases would be greatly reduced.

He has examined the effects of sea-water on the larval stages and invertebrate vectors of lung-worm and liver-fluke and finds that it is rapidly lethal to these organisms. While sea-water would not harm pastures it has a bad effect on arable land, so the sea could not be allowed to more than fill the ditches. Pastures might be treated simultaneously with calcium cyanamide, the lethal effects of which the author has proved. The project is discussed in great detail.

B.G.P.

227—Archives de l'Institut Pasteur d'Algérie.

- a. PALLARY, P.—"Sur la répartition des Bullins et du Planorbe de la Mitidja en Algérie." XI (3), 455-463. [1933.]

(a) Pallary has searched the waters in the Oran district of Algeria for possible schistosome carriers. He has found only *Bullinus raymondi*, and that only in the river Macta.

B.G.P.

228—Archiwum Hydrobiologii i Rybactwa.

- a. MARKOWSKI, S.—"Die Eingeweidewürmer der Fische des polnischen Balticums. (Trematoda, Cestoda, Nematoda, Acanthocephala.)" VII, [Reprint 58 pp.] [1933.]

(a) Markowski has surveyed the helminth fauna of fish in Polish territorial waters of the Baltic. His findings, which contain several new host-records but no new helminths, include 8 species of Trematoda in 7 species of fish, 12 species of Cestoda in 14 species of fish, 5 species of Nematoda in 20 species of fish, and 6 species of Acanthocephala in 12 species of fish. The helminths are systematically described with numerous measurements and text-figures.

B.G.P.

229—Australian Journal of Experimental Biology and Medical Science.

- a. GORDON, H. McL.—“A method of establishing pure infestations with adult *Trichostrongylids* in sheep.” XI, pp. 151-152. [1933.]

(a) Gordon has found it practicable to set up an experimental infestation in worm-free lambs with *Ostertagia* spp. and with *Haemonchus contortus* by drenching with adult worms in saline solution. This technique failed with *Trichostrongylus* spp. and *Nematodirus* spp. R.T.L.

230—Australian Veterinary Journal.

- a. KAUZAL, G.—“Seasonal incidence of gastro-intestinal parasites of fat sheep in New South Wales.” IX (5), 179-186. [1933.]
- b. KAUZAL, G.—“Note on a *Trichostrongylus* infestation of lambs in Victoria.” IX (5), 197-198. [1933.]
- c. GORDON, H. McL.—“A note on the presence of the lungworm of the cat, *Aelurostrongylus abstrusus* (Railliet, 1898), in Australia.” IX (5), 198. [1933.]
- d. GORDON, H. McL. & GRAHAM, N. P. H.—“A few cases of infestation with *Chabertia ovina*.” IX (5), 198-199. [1933.]

(a) Kauzal finds that “fat” stock slaughtered in Sydney has considerable infestations with *Haemonchus contortus*, *Trichostrongylus* and *Ostertagia* and *Nematodirus* spp., but heavy infestations with *Oesophagostomum* or *Chabertia* were seldom met with. *Haemonchus contortus* and *Trichostrongyles* fell from a marked summer peak to a low minimum in winter while *Ostertagia*, *Nematodirus* and *Chabertia* varied little throughout the year. The egg production of these various nematodes showed remarkable differences. R.T.L.

(b) In lambs suffering from “black scour” Kauzal found a *Trichostrongyle* infestation of from 35,000 to 40,000 worms. Nevertheless the egg count never exceeded 3,600 eggs per gramme of faeces. In one case with 83,000 worms the egg count was only 2,000 per gramme. A considerable number of the females were immature. The weights of the infested lambs were between 35 and 49 lbs.; the uninfested 58 to 77 lbs. R.T.L.

(c) The lungworm *Aelurostrongylus abstrusus* was diagnosed in a cat in Sydney by the discovery of the larvae in the faeces. R.T.L.

(d) Gordon and Graham conclude that *Chabertia ovina* sucks blood and that it causes haemorrhagic colitis, with oedema of the mucosa, great thickening and marked congestion of the intestinal wall, with passage of soft, pulaceous faeces, characteristically containing mucus and blood. R.T.L.

231—Berliner Tierärztliche Wochenschrift.

- a. SSOLONITZIN, J. A.—“Erkrankungen der Milz, hervorgerufen bei Pferden durch *Habronema megastoma*.” XLIX (14), 213. [1933.]

(a) *Habronemiasis* in horses is known to involve gastric lesions due to the adult worms, and cuticular, peribronchial and conjunctival lesions due to the larvae. Ssolonitzin here gives some details of two cases in which the spleen was involved. Dense fibrous-tissue nodules were found, up to 5 cm. in diameter, in which sexually mature *H. megastoma* were present. These nodules contained no trace of spleen parenchyma and were similar to those produced by this parasite in its normal location in the stomach. B.G.P.

232—*Biochemische Zeitschrift*.

- a. SMORODINZEW, I. A., BEBESCHIN, K. W. & PAWLOWA, P. I.—“Beiträge zur Chemie der Helminthen. I. Mitteilung: Die chemische Zusammensetzung von *Taenia saginata*.” CCLXI (1/3), 176-178. [1933.]
- b. FRIEDHEIM, E. A. H. & BAER, J. G.—“Untersuchungen über die Atmung von *Diphyllobothrium latum* (L.). Ein Beitrag zur Kenntnis der Atmungsfermente.” CCLXV (4/6), 329-337. [1933.]

(a) As a preliminary to an investigation into the chemical nature of helminth toxins, Smorodinzew, Bebeschin and Pawlowa have determined the dry weight, ash, total nitrogen and fat of a number of *Taenia saginata*. Regarding the nitrogen as wholly albuminous, they find the protein to be 4 per cent. and fat 1.36 per cent. of the live weight; there remains an organic residue of 6.19 per cent., most of which they assume to be glycogen. The fats varied considerably (0.29-3.17 per cent.) from one specimen to another.

B.G.P.

(b) The authors examine the respiratory activity of different stages of the tapeworm *Diphyllobothrium latum*, by means of the Barcroft-Warburg manometer. It is found that three of the four stages, the egg, the plerocercoid and the adult worm utilize oxygen, this absorption being increased by the presence of glucose.

The worms are claimed to be free from bacteria. The oxygen absorption is unaffected by replacing the air by 95 per cent. CO + 5 per cent. oxygen, and hence it is concluded that Warburg's “Atmungsferment” is probably not of importance to this worm. The presence of M/1,000 KCN or of M/100 KCN, although causing some inhibition, does not completely inhibit the oxygen absorption of the adult worm. The respiration of the larvae and of the eggs, however, are completely arrested by the presence of M/1,000 KCN. The addition of M/500 pyocyanin [the pigment obtained from *Pseudomonas pyocyanea*], counteracts this inhibition with the larvae and the oxygen uptake even exceeds the normal value by as much as 70 per cent. in its presence. 5 per cent. urethane completely inhibits the aerobic respiration of the larvae.

Similarly the respiration of *Triaenophorus lucii* is not inhibited by 96 per cent. CO but is completely inhibited by M/1,000 KCN although this inhibition wears off after 20 to 50 minutes. Cytochrome C appears to be present in both worms.

These facts cannot as yet be correlated with our present knowledge of respiratory systems obtained largely from studies of bacteria. W.R.W.

233—*Bulletin de l'Académie Vétérinaire de France*.

- a. HENRY, A. & MASSON, G.—“Onchocercose cervicale du dromadaire.” VI (5), 208-213. [1933.]

(a) As a result of obtaining some fragments of *Onchocerca fasciata* from cervical nodules in a camel of unknown origin, Henry and Masson are able to add to the scanty morphological data on this parasite.

Thus, the original description of Railliet & Henry (1910) was based on fragments of females, excluding extremities. The present authors have found

terminal fragments of females and, in the connective tissues near a group of nodules, the caudal extremity of a male. This showed a tail 98μ long, spicules 315μ and 95μ long respectively, and indistinct papillae; these characters relate *O. fasciata* to the species *O. cervicalis* (horse) and *O. gutturosa* (ox), both of which parasitize the cervical ligament. B.G.P.

234—Bulletin of the Academy of Sciences. Allahabad.

- a. CHATTERJI, R. C.—“On the trematode parasites of a Rangoon siluroid fish *Clarias batrachus* (Linnaeus 1785).” III (1), 33-40. [1933.]

(a) Chatterji describes as new three trematodes found during the examination of *Clarias batrachus*. *Astiotrema spinosa* n. sp. was obtained from the intestine of 2 and from the posterior part of the stomach of 1 of the 30 fish examined. It is compared with the 5 other species in the genus and is shown to approach *A. reniferum* from which it differs in the extent of the intestinal caeca and vitellaria. *Ganada clariae* gen. et sp. n. was encountered in 19 fish. The parasite agrees with the characters of the subfamily Lepodermatinae but differs from all other genera in it by possessing an external vesicula seminalis. A diagnosis of the new genus *Ganada* is given. *Masenia collata* gen. et sp. n. was recovered from the intestine and posterior part of the stomach of 18 fish. Although the new genus, which belongs to the family Acanthostomidae Poche, 1926, shows closer relationship with the subfamily Anoicostominae Nicoll, 1914 than with the Acanthostominae, the author considers it belongs to a new subfamily, the Maseniinae, on account of the form and size of the cirrus sac and the position of the genital pore, which is dorsal to the oral sucker. A diagnosis of the Maseniinae n. subfam. is given as well as a key to the family Acanthostomidae. J.N.O.

235—Bulletin de l'Association Française pour l'Étude du Cancer.

- a. KOBOZIEFF, N.—“Les helminthes et le cancer chez les souris. Contribution expérimentale à l'étude du rôle des helminthes dans la pathogénie des cancers : cestodes et cancers chez la souris.” XXII (2), 152-171. [1933.]

(a) Kobozieff has compared the incidence of cancer in waltzing mice infested with *Hymenolepis microstoma* with that in a control group of uninfested mice; he finds nothing to suggest that the presence of this cestode is conducive to cancer.

303 mice were obtained from a laboratory-bred population, of known genealogy over several generations, and 157 of them were fed with artificially infested *Tenebrio molitor*. The incidence of cancer and the age at death in this infested group are compared with those factors not only in the control group but also in the ancestors of the mice used in the experiment. B.G.P.

236—Bulletin. Minnesota Agricultural Experiment Station. St. Paul.

- a. FENSTERMACHER, R. & JELLISON, W. L.—“Diseases affecting moose.” 20 pp. [1933.]

(a) Fenstermacher and Jellison, in discussing the diseases of Moose in Minnesota, report finding in it the following helminths:—*Dictyocaulus hadweni* (sometimes severe), *Hydatid* cysts (in lungs), *Cysticercus tenuicollis* (in liver), *Paramphistomum cervi* and *Nematodirella longispiculata*. T.W.M.C.

237—Bulletin. Mysore Coffee Experiment Station. Department of Agriculture.

- a. MAYNE, W. W. & SUBRAMHANYAM, V. K.—“Nematode worms in relation to the cockchafer and mealy bug problem in Coorg.” No. 11, 34 pp. [1933.]

(a) Mayne and Subramhanyam found that the cockchafer and mealy bug were not responsible for the extensive damage to coffee plants in Coorg, India, the disease being caused by *Anguillulina coffeae*.

Symptoms of infestation and the morphology of the nematode are described in detail. Soil disinfection as a control method is not considered possible, but changes in planting methods to avoid damage to roots, and heavy manuring as tried in Java are advocated as being worthy of trial. The abandonment of seriously infested land, and more particularly nursery sites, is strongly recommended, as is also hot water treatment of suspected nursery stock before planting on clean land. The length of time necessary for land to become clear of infection after the abandonment of coffee cultivation is at present unknown and no definite information regarding immune species or strains of coffee is available.

M.J.T.

238—Bulletin de la Société Medico-Chirurgicale de l'Indochine.

- a. HOÜDEMER, E., DODERO & CORNET, E.—“Les sparganoses animales et la sparganose oculaire en Indochine.” XI (4), 425-451. [1933.]

(a) Houdemer, Dodero and Cornet have studied the relationship between animal and human ocular sparganosis. Human infestation may either be by direct transference of plerocercoids through the periocular tissues or by the ingestion of procercoids through drinking water containing parasitized copepods, or by consuming insufficiently cooked meat containing spargana. Owing to the widely differing measurement attributed by various investigators to both plerocercoids and adults of *Diphyllobothrium mansonii*, the authors show the necessity for studying the systematic relations existing between human and animal sparganosis in different parts of the world. Spargana infest widely different hosts and a list of 9 mammals, 3 domesticated and 19 wild birds, 7 reptiles and 2 batrachians in which the authors have found them is given. They have never found plerocercoids in fish even when copepods were abundant in the water. Spargana do not stimulate any reaction of the tissues they inhabit and their movements are insignificant in cold-blooded vertebrates. In warm-blooded vertebrates the same usually obtains, but when infection is *via* the periocular tissue or by deposition within the subcutaneous tissue a tissue reaction results and a sparganum capsule is formed. Heat, within certain limits, augments the vitality of spargana which accounts for their inactivity in a cold-blooded host and their passage from it, by direct contact, to a warm-blooded one, such as man. In dealing historically with the pathology of ocular sparganosis the authors show it to be a disease almost exclusive to Indo-China.

J.N.O.

239—Bulletins de la Société de Pathologie Exotique.

- a. DESCAZEUX & MOREL.—“Diagnostic biologique (xénodiagnostic) des Habronémoses gastriques du cheval.” xxvi (8), 1010-1014. [1933.]
- b. BONNAL, G., JOYEUX, C. & BOSCH, P.—“Un cas de cénurose humaine dû à *Multiceps serialis* (Gervais).” xxvi (8), 1060-1071. [1933.]
- c. LEFROU, G.—“Présence de *Bullinus dybowskyi* au Sénégal. La diagnose des Bullinidae africains.” xxvi (8), 1099-1105. [1933.]
- d. JOYEUX, C., BAER, J. G. & MARTIN, R.—“Recherches sur les sparganoses.” xxvi (9), 1199-1208. [1933.]

(a) Descazeaux and Morel recommend a biological diagnosis of equine gastric Habronemiasis, whereby the faeces of a suspected horse are concentrated and used as a culture medium for the eggs of flies. The fly larvae which hatch will become infected with *Habronema* by ingesting the embryos if they are present, and after about a fortnight the characteristic infective larvae of *Habronema* can readily be found in the proboscis-region of the now adult flies. The authors briefly describe their culture technique and the morphology of the infective *Habronema* larvae. They suggest the application of the method to other spirurids having a similar life-history. B.G.P.

(b) Bonnal, Joyeux and Bosch report the occurrence of a Coenurus, due to *Multiceps serialis*, as a tumour in the right buttock of a woman resident in Marseilles. Infection originated apparently from dogs, belonging to her hunter husband, which shared their master's room and meals. Details of the clinical observations and examination of the tumour are given.

In abnormal scolices the most frequent anomaly was malformation of the hooks, some of which were merely fragments of elongated chitin. Normal scolices, fed to a young dog, were later recovered as adult tapeworms at autopsy and critically examined. The authors base their diagnosis of the species on epidemiological grounds, the adult form recovered from the dog, the seat of the tumour, characters of the bladder, and size and shape of the hooks. Of the known cases of human coenuriasis, which are detailed, this, the sixth, is claimed to be the only one definitely diagnosed. J.N.O.

(c) Prompted by the frequent occurrence of *Schistosoma haematobium* in Sudanese soldiers at Saint Louis garrison, Lefrou searched for the molluscan intermediate host and found that *Bullinus dybowskyi*, a known vector for this fluke, was being introduced from the river Senegal into the watering places. Although unable to demonstrate the degree of infestation of the snails, owing to his departure, the author adds that there was little chance of the water being contaminated by urine and that cases of Bilharzia treated at Saint Louis concerned subjects coming from another part of the territory. Diagnoses of the African Bullinidae complete this paper. J.N.O.

(d) Joyeux, Baer and Martin consider that the spargana of *Diphyllorhynchus mansonii* and *D. erinacei europaei* can grow and break up within their hosts, the fragments continuing to live independently without regenerating a scolex and never bearing the number of calcareous bodies observable in the genuine anterior extremity which bears the scolex. When spargana, from which the scolex had been removed, are artificially introduced into the

abdominal cavity of vertebrates, the scolex is not re-formed even when the hosts are submitted to a calcium and hypervitamin D diet.

Natural promiscuity, and not a multiplication of the larva, is the reason for several spargana being observed in the same capsule. They consider that *S. proliferum*, observed rarely in man and unknown in the adult form, is perhaps a teratologic form.

J.N.O.

240—Chinese Medical Journal.

- a. ANDREWS, M. N.—“Phyllodistomum in shrimps.” XLVII (8), 813-815. [1933.]

(a) Dr. Andrews draws attention to errors in the description of a fluke found in shrimps in Chengtu by Dr. Du. By an independent examination of other specimens the author shows that the trematodes belong to the genus *Phyllodistomum* M. Braun, 1899 in the family Gorgoderidae, Du's so-called bi-lobed ovary and vitellaria actually being the vitellaria and flame cells respectively.

J.N.O.

241—Clinica Veterinaria.

- a. PENSO, G.—“La Calciocianamide nella profilassi delle strongilosi del bestiame.” LVI (8), 579-583. [1933.]

(a) Penso considers that the strongyles of domesticated animals are, in Italy, largely disseminated by the custom of collecting dung and bedding into dung-hills and afterwards spreading this material upon the land. The putrefactive processes involved are not such as to kill strongyle eggs: they merely retard their development. If the dung-hills were treated with adequate amounts of calcium cyanamide not only would eggs and larvae be killed but also the value of the dung as fertilizer would be enhanced. Penso considers that the addition of 12 Kg. of calcium cyanamide per cubic metre of dung would give an optimum nitrogen content as fertilizer, and would at the same time be sufficient to kill the strongyle eggs.

B.G.P.

242—Comptes Rendus mensuels des Séances de l'Académie Polonaise des Sciences et des Lettres. (Classe des Sciences Mathématiques et Naturelles.)

- a. WIŚNIEWSKI, L. W.—“Remarques sur la systématique de la famille de Coitocaecidae-Nicollia [Nicollia in text] n.g., Ozakia n.g., Coitocaecum proavatum n. sp.” No. 1, p. 6. [1933.]

(a) *Coitocaecum proavatum* n. sp. is distinguished by the position and form of the testis and vitellaria. The structure of the cirrus sac and position of the genital pore in the genus *Coitocaecum* is discussed and found to fall under three types which Wiśniewski regards as of generic significance. He thus places *C. ovatum* and *C. macrostomum* in the new genus *Nicollia*; *C. plagiorchis*, *C. latum*, *C. orthorchis*, *C. diplobulbosum* and *C. unibulbosum* all go into the new genus *Ozakia*; while *C. gymnophallum*, *C. testiobliquum* and *C. proavatum* n. sp. remain in the genus *Coitocaecum*.

S.G.S.

243—Comptes Rendus des Séances de la Société de Biologie.

- a. BACIGALUPO, J.—“Quel est l'avenir du scolex echinococcique avalé par le lapin?” CXIV (29), 89-92. [1933.]
- b. CRUZ, W. O.—“Présence d'hémolysines dans les extraits de parasites intestinaux du chien (*Ancylostoma caninum* et *Toxocara canis*).” CXIV (29), 139-141. [1933.]
- c. BACIGALUPO, J.—“L'échinococcose secondaire d'origine digestive chez le Cobaye.” CXIV (30), 390. [1933.]
- d. TRAVASSOS, L.—“Ascaridés des crocodiles sud-américains.” CXIV (34), 833-834. [1933.]
- e. TRAVASSOS, L.—“Sur un nouveau trématode de poissons de la vallée du fleuve Parahyba.” CXIV (34), 839-840. [1933.]
- f. ALMEIDA, J. L. de.—“Nouveau nématode parasite de Cétacés du Brésil, *Halocercus brasiliensis* n. sp.” CXIV (35), 955-958. [1933.]
- g. TRAVASSOS, L.—“Observations sur *Zygocotyle lunatum* (Diesing, 1835) (Trematoda-Paramphistomidae).” CXIV (35), 958-959. [1933.]
- h. ALMEIDA, J. L. de.—“Note sur les espèces du genre *Haemonchus* Cobb, 1898 (Nematoda-Trichostrongylidae).” CXIV (35), 960-961. [1933.]
- i. TEIXEIRA DE FREITAS, J. F.—“Sur deux nouvelles espèces du genre *Capillaria* Zeder, 1800.” CXIV (35), 962-964. [1933.]
- j. SEMICHON, L.—“Sur le contenu des cellules vésiculeuses du parenchyme de *Fasciola hepatica* L.” CXIV (38), 1169-1170. [1933.]
- k. JOYEUX, C., BAER, J. G. & MARTIN, R.—“Sur le cycle évolutif des *Mesocoeloides*.” CXIV (38), 1179-1180. [1933.]
- l. ALMEIDA, J. L. de.—“Nouveau nématode parasite de Myriapodes du Brésil: *Ichtyocephalus artigasi* n. sp.” CXIV (38), 1193-1195. [1933.]
- m. TEIXEIRA DE FREITAS, J. F.—“Nouvelles espèces du genre *Capillaria* Zeder, 1800.” CXIV (38), 1195-1197. [1933.]

(a) Bacigalupo administered to rabbits, by means of a sound, hydatid fluid and scolices from a hydatid cyst in a sheep's liver, and subsequently found developing cysts or their indications in the lungs, peritoneum or liver of the rabbits, which he concluded were caused by the swallowing of the scolices. He also concludes that the clinical development of peritoneal echinococcosis following the symptoms of a liver hydatid cyst, is due to the fact that 10-20 per cent. of liver cysts open into the bile ducts, and that scolices reaching the intestine by this route can migrate to the peritoneum and there produce hydatid cysts. He is of opinion that secondary hydatid cysts in the lung following the rupture therein of a cyst are caused by scolices being swallowed after escaping from the ruptured cyst *via* the bronchi, and on reaching the intestine penetrate its wall and the peritoneum and migrate to the lungs in a manner analogous to that described in the experimental infection of the rabbit.

J.J.C.B.

(b) Using extracts of *Ancylostoma caninum* and *Toxocara canis* prepared according to Whipple's (1909) technique, Cruz obtained a heat-resistant haemolytic substance whose properties were demonstrated on the blood of dogs.

J.J.C.B.

(c) Bacigalupo repeated, with guinea-pigs, his previous experiments on rabbits, and introduced the hydatid material by mouth and anus. Of six guinea-pigs, fed with scolices, three were autopsied and two of these showed evidence of scolices in the lungs or peritoneum. To four guinea pigs scolices were administered *per rectum*, and in two of these, scolices were subsequently found in congested areas in the lungs.

J.J.C.B.

(d) Travassos briefly describes 3 new Ascarids from the stomach of the crocodile, *Caiman sclerops*, common in South America. They are: *Dujardinia paulista* n. sp., from Rio Claro, State of Sao Paulo; *D. longispicula* n. sp., from Matto Grosso; and *Multicaecum baylisi* n. sp., from both localities stated above. Despite an accentuated sexual dimorphism in all 3 species the author states they are easily distinguishable, in both sexes, by spicule and ovejector differences.

Travassos considers that confusion exists within the genus *Dujardinia* and especially regarding the description of the type species, which he states might belong to *Dujardinia* or *Multicaecum*, and suggests an examination of material from the original host would settle the question. J.N.O.

(e) Travassos describes *Kalitrema kalitrema* gen. et sp. n. from the small intestine of *Plecostomus punctatus* C. taken in a tributary of the river Parahyba, Pinheiro, Rio de Janeiro. In the author's opinion the fluke is a curious morphological type of the Paramphistomidae as the anterior structure is similar to that found amongst trematode parasites of marine turtles, while the posterior portion terminates in two lobes and the testes, situated anteriorly, are extra-caecal. Besides the erection of a new genus, for the reception of this fluke, Travassos also proposes the formation of a new subfamily, the *Kalitrematinae*, a diagnosis of which is given. J.N.O.

(f) Almeida describes *Halocercus brasiliensis* n. sp. from the bronchi of *Sotalia brasiliensis* van Ben., a dolphin extremely common in the Bay of Guanabara, Rio de Janeiro. The parasite, described from 3 male, 3 female and several incomplete specimens, is the first species of the genus to be recorded from Brazil. It is very similar to *H. delphini* but may be distinguished therefrom by the form of the bursal rays, length and shape of spicules, lengths of body, oesophagus, vagina and ovejector. J.N.O.

(g) Travassos briefly reviews the historical data relative to *Zygocotyle lunatum* and gives anatomical measurements of specimens obtained from a domesticated Muscovy Duck (*Cairina moschata*). The author has satisfied himself that this species corresponds with *Z. ceratosa*, described by Stunkard, except in the acetabulum which, in the latter form, is considered as evidently representing a contracted deformity due to the histological technique used. The fluke has been described from both North and South America and is adapted to domesticated ducks; it is also described as parasitic in poultry and mammals. J.N.O.

(h) Almeida considers that male characters only can be relied upon for specific identifications in the genus *Haemonchus* since too wide variations occur in the vulvar region of females, even within the same species. Consequently he suggests that, of the 12 known species, *H. fuhrmanni*, *H. pseudocontortus* and *H. atectus* should be regarded as synonyms of the type species, *H. contortus*. *H. cervinus* and *H. bispinosus* are treated as *species inquirendae* until further investigated, when they may also rank as synonyms of *H. contortus*. All other species are distinct and valid except *H. lunatus* which appears to be an anomaly of the type species. J.N.O.

(i) Teixeira de Freitas gives morphological descriptions of both sexes of the two new Brazilian capillarids. The first is *Capillaria vazi* n. sp. collected at Santa Catharina from the Capoeira partridge; the location in the host is unknown. The second, *C. spiculata* n. sp., was taken from the cloaca of the Brazilian cormorant at Rio de Janeiro. J.N.O.

(j) In the large cells of the parenchyma of *Fasciola hepatica* Semichon has found besides glycogen, a normal constituent thereof, a substance which, in the unfixed condition, is amorphous and not very refringent. The author has studied this material by the use of suitable staining methods, after the elimination of the glycogen. It appears as a solid residue formed of numerous very small isolated particles found principally in the peripheral regions of the cells and much less abundant than the glycogen. This substance, which the author thinks may play a rôle in modifying the turgescence of the parenchyma, differs from other particles, apparently protein in nature, which are distinguished by their high refringency, their reaction towards certain stains and their central position within the cells. J.N.O.

(k) The pursuit of further researches into the evolution of *Mesocestoides ambiguus* has enabled Joyeux, Baer and Martin to supplement the facts already known about this cestode.

Originally, adult tapeworms were obtained at autopsy of a laboratory-reared cat fed with larvae of the *Tetrathyridium* type recovered from the snake *Elaphe scalaris* caught near Marseilles [see Helm. Abs. I, No. 200a]. They now state that this parasite also exists in North Africa, having obtained it experimentally from *Tetrathyridia* recovered from *Zamenis hippocrepis* from Tunis. Although development can be effected in cat and dog it has not been demonstrated in ferrets. The rapidity of development of this cestode is very variable. Whereas adults were obtained in 56 days in 27 out of 32 examples during previous experiments, recent attempts with a dog produced worms showing only traces of segmentation in 54 days, and with a cat adults whose segments were hardly mature in 145 days.

As with *M. lineatus* G., a closely related species, both adult and larval forms of *M. ambiguus* were seen in the definitive host. A cat, at autopsy, showed besides adults, a *Tetrathyridium* not yet re-encapsuled by host reaction. Preliminary attempts to study the possible rôle of the cat as intermediate host of *M. lineatus* showed that, while *Tetrathyridia* were obtained in one instance, the results were somewhat open to question since the cats used were not known to be helminth-free animals and possibly carried a natural infection. J.N.O.

(l) Almeida gives morphological descriptions of males and females of *Ichtyocephalus artigasi* n. sp. found in the intestine of Myriapods (Julidae) at Parada Mendes, Rio de Janeiro. The author also gives a generic diagnosis based on the type species, described from female specimens only, and on this, the second species in the genus. J.N.O.

(m) Teixeira de Freitas describes *Capillaria appendiculata* n. sp. from the large intestine of a Brazilian cormorant, *Phalacrocorax brasiliensis* (Vieill.) and *C. brasiliensis* n. sp. from the small intestine of a night-heron, *Nyctocorax naevius* (Bodd.) Both were found at Rio de Janeiro. J.N.O.

244—Cornell Veterinarian.

- a. BAKER, D. W.—“*Trichostrongylus* in New York State.” XXIII (1), 71-73. [1933.]

(a) Baker found *Trichostrongylus axei* in 3 out of 11 horses examined in New York State, causing a patchy gastritis with folded and thickened mucosa, and causing anaemia and debility. He also found it in sheep, calves and a racoon.

T.W.M.C.

245—Dermatologische Wochenschrift.

- a. SOLGER, B.—“Ein vergessener Parasit (*Trichosoma recurvum*) als Ursache von ‘Creeping Disease,’ ein literar-historischer Beitrag zur vergleichenden Pathologie der Haut der Wirbeltiere.” XCVI (14), 476-477. [1933.]

(a) Solger wishes to rescue from oblivion an early reference to a creeping eruption in the American crocodile caused by the nematode *Trichosoma recurvum*. The reference is *Arch. Naturgesch.*, 1877, XLIII, 1.

B.G.P.

246—Deutsche Medizinische Wochenschrift.

- a. BIRK, W.—“Ueber den Nachweis von Spulwurmlarven im Auswurf.” LIX (22), 841-843. [1933.]

(a) Birk describes *Ascaris* larvae observed in the sputum of a naturally infected person and believes that this is the first recorded case, though they have been found thus in a patient artificially fed with *Ascaris* eggs.

The patient suffered from chronic bronchial catarrh, with high eosinophilia and cutaneous desquamation of the palms and soles, but no fever. The application, to the child's skin, of an antigen consisting of dried, powdered, *ascaris* produced an irritating hyperaemic zone and asthmatic symptoms which lasted all day.

The writer concludes that *Ascaris* infection can set up chronic bronchial catarrh but maintains an open mind as to whether this is due to a toxic product of the worms or to irritation of the bronchial mucosa by migrating larvae.

S.G.S.

247—Deutsche Tierärztliche Wochenschrift.

- a. CLAUSSEN, L.—“Über häufig bei der Biberratte vorkommende Darmparasiten.” XLI (38), 599-601. [1933.]
- b. KOTLÁN, A. & MÓCSY, J. v.—“*Ollulanus tricuspis* Leuck. als Ursache einer chronischen Magenwurmseuche beim Schwein.” XLI (44), 689-692. [1933.]

(a) Claussen here gives a brief account of the commoner intestinal helminths of the nutria, *Myocastor coypus*, as found by him. The helminths, which are not definitely named, are a *Trichostrongyle*, a species of *Strongyloides*, one of *Trichuris* and an Anoplocephalid. These forms are illustrated.

B.G.P.

(b) Kotlán and Mócsy have now recorded *Ollulanus tricuspis* from the stomach of four pigs in Hungary, where it has never appeared before, even in cats.

In discussing the clinical picture and post-mortem findings the authors point out that only the stomach showed pathological changes, although other nematodes were present in the intestine. By feeding material to cats they obtained slight infections with *Ollulanus* but, curiously, pigs were negative to experimental feeding. The parasite, which is described and figured, appears to be very pathogenic in pigs. Among the other nematodes found in the pigs is included *Trichostrongylus instabilis* [= *T. colubriiformis*], a parasite not hitherto recorded from pigs. B.G.P.

248—Farmers Guide to Agricultural Research.

- a. FRYER, J. C. F.—“Pests and parasites. II. Potatoes—Potato sickness.” Year 1932, p. 180. [1933.]

(a) Fryer mentions a publication of the Imperial Bureau of Agricultural Parasitology which summarizes the knowledge relating to the potato root celworm and potato sick soils. Chemical methods of soil sterilization are considered to give unsatisfactory results, and the use of root excretions which stimulate the larvae to hatch is regarded as offering greater prospects of success in controlling the nematodes. M.J.T.

249—Flygblad. Statens Växtskyddsanstalt Experimentalfältet.

- a. AHLBERG, O.—“Potatisålen (*Heterodera schachtii* subsp. *rostochiensis* Woll.).” No. 1. [Reprint, 5 pp.] [1933.]

(a) The distribution of the potato-strain of *Heterodera schachtii* in Sweden is detailed together with a description of the damage caused by the nematode, its methods of spread, and measures which are taken for its control. It is stated that the larvae can survive for more than a year free in the soil without access to a host plant, but that after a period of eight years during which the host plants (potatoes and tomatoes) are withheld, previously infected soil becomes free from infection. The use of seed potatoes grown on infected land is considered to be the chief cause of spread but the transplantation of plants from infested nurseries is also a fertile source of infection. M.J.T.

250—Folia Haematologica.

- a. ARNETH.—“Qualitative Blutuntersuchungen bei Mumps, Miliartuberkulose, Ascariasis und Asthma.” XLIX (3/4), 402-410. [1933.]
b. ALEXEIEFF, G.—“Sur l'hématopoïèse dans les helminthiases. Sur la question de l'origine des éosinophiles.” XLIX (3/4), 444-446. [1933.]

(a) From considerations of the blood picture in 4 diseases, including a case of ascariasis with an eosinophilia of 13.5 per cent., Arneth concludes that the relationships of all the white cells should be considered in pathological conditions, and not merely the neutrophile cell. B.G.P.

(b) Alexeieff has examined the bone marrow, by puncture of the sternum, of 16 patients showing eosinophilia, 12 of which carried helminths. He notes an exact correspondence between the cellular elements of the marrow and those of the peripheral blood. B.G.P.

251—*Fragmenta Faunistica Musei Zoologica Polonici.*

- a. MARKOWSKI, S.—“Materiały do badań nad fauną helmintologiczną półwyspu Helskiego.” [Contributions à l'étude de la faune helminthologique de la presqu'île de Hel.] II (10), 107-111. [1933.]

(a) Markowski has examined the helminth fauna of a selection of animals, reptiles, mammals and birds, from the Hel peninsula (Polish Baltic coast). The peninsula can be considered as an island for zoological purposes since it is protected from overland invasion by animals from the mainland. It is frequented by migratory birds, however. Six trematodes, a pseudophyllid cestode and a microfilaria were found in birds, and 7 nematodes and an acanthocephalan in reptiles and mammals.

B.G.P.

252—*Gardeners' Chronicle.*

- a. STANILAND, L. N.—“Treatment of narcissus bulbs with hot water.” XCIV (2446), 366. [1933.]

(a) Staniland points out that differences of technique are responsible for discrepancy between the results of his experiments on hot water treatment and those obtained by Hastings.

Desiccated worms were found to be killed by a much shorter exposure to hot water treatment than that recorded by Hastings, and it is suggested that seventy-two hours should be allowed to elapse after treatment before observations are carried out on the condition of the worms. Satisfactory results have been obtained by growers following a shorter period of treatment than was recommended by Staniland.

M.J.T.

253—*Geneeskundig Tijdschrift voor Nederlandsch-Indië.*

- a. SCHEEPE, F. L.—“Filariën en de kleuring van Goldie.” LXXIII (22), 1404. [1933.]

(a) Scheepe finds that the Goldie staining technique, used in thick smears of the malarial parasite, is also useful for microfilariae. Cell nuclei show up dark blue, the body of the worm a brownish or greenish yellow, and the sheath pink with a regular sprinkling of minute dots. The standard Goldie A solution is used, but the B solution is modified.

B.G.P.

254—*Giornale Italiano di Malattie Esotiche e Tropicali ed Igiene Coloniale.*

- a. ESPOSITO, G.—“Moderne acquisizioni sulla fisio-patologia degli elminti. Sindromi de elmintiasi e reperti occasionali di esame coprologico.” VI (1), 15-21, (4), 99-106. [1933.]
- b. AMELIO, F.—“Contributo di osservazioni cliniche, per una più esatta conoscenza del tipo di anemia degli individui affetti da anchilostomiasi.” VI (3), 57-72. [1933.]

(a) Esposito gives a superficial account of the classification, pathogenesis, symptomatology and clinical diagnosis of the commoner helminths of man.

B.G.P.

(b) Amelio discusses the nature of hookworm anaemia and gives a full haematological analysis of 14 cases. He concludes that this anaemia is of the aplastic type, with no definite signs of haemolysis.

He describes the anaemia as microcytic with a hypochromia due largely to the reduced volume of the red cells. On the average the red cells were reduced in number to 2.3 millions and the haemoglobin to 31 per cent. The white cells showed an eosinophilia in each case. Aplasia in the haematopoietic organs was an obvious feature of the more severe cases.

B.G.P.

255—Harper Adams Utility Poultry Journal.

- a. TAYLOR, E. L.—“The parasitic worms of poultry, and the diseases which they cause.” XVIII (5), 209-215. [1933.]

(a) Taylor deals with the control and treatment of poultry parasites. The easiest method of control is by means of sanitation, particularly among young birds which are more susceptible to helminth parasites than old ones. There is little unanimity of opinion on the subject of treatment though kamala on the whole is recommended as a taeniicide.

P.A.C.

256—Indian Journal of Medical Research.

- a. MITRA, P. N.—“The influence of blood group in certain pathological states.” XX (4), 995-1004. [1933.]
- b. KORKE, V. T.—“Observations on filariasis in some areas in British India. Part IX. Sind area.” XXI (2), 437-440. [1933.]

(a) Mitra has worked out the blood group of 2,000 sick and healthy persons, and has found that those of group AB suffer from an increased liability to malignant and helminth infections.

R.T.L.

(b) Korke failed to find any evidence of the occurrence of filariasis in the province of Sind from an examination of 500 male convicts in the jails of Larkana, Sukkur and Shikarpur.

R.T.L.

257—Indian Journal of Veterinary Science and Animal Husbandry.

- a. DATTA, S. C. A.—“The etiology of Bursati.” III (3), 217-236. [1933.]
- b. RAO, M. A. N.—“*Cercaria hurleyi* n. sp.” III (3), 237-239. [1933.]
- c. RAWSON, G. W.—“A comparison of carbon tetrachloride and tetrachlor-ethylene.” III (3), 294-297. [1933.]

(a) Datta, in an extended account of the aetiology of Bursati in India, describes the disease, its pathological history, and investigations into the nature of the causal agent. He considers that it is not of mycotic origin but that it is a habronemic granuloma of equines due, most probably, to the Spirurid *Habronema muscae*, and involving not only the skin but also internal organs such as the lung. Since the nematode larvae exhibit considerable migratory powers the disease becomes more than a mere local infection and, in the majority of cases studied, wound infections played an insignificant rôle while skin lesions were produced apparently *via* the general circulation.

J.N.O.

(b) Rao describes *Cercaria hurleyi* n. sp. obtained from 7 *Lymnaea leuteola* out of 710 collected from the Spur Tank, Egmore. The cercariae, not found in any other species of freshwater snails from the same locality, occur in long slender sporocysts in the digestive gland of the mollusc, are powerful swimmers, though small in size, and appear to be negatively phototropic. The characters of this cercaria, which possesses eye spots, are compared, in a table, with those of other known holostome cercariae, which all lack eye spots.

J.N.O.

(c) This is a reprint of a paper which originally appeared in the Journal of the American Veterinary Medical Association and has been summarized in a previous article [see Helm. Abs., I, No. 57c].

J.N.O.

258—Indian Medical Gazette.

- a. MAPLESTONE, P. A. & MUKERJI, A. K.—“Carbon tetrachlorethylene in the treatment of hookworm infection.” LXVIII (11), 617-620. [1933.]

(a) Tetrachlorethylene is safer than carbon tetrachloride and at least as efficacious. It has the further advantage that when administered to a large labour force, alcohol does not increase its toxicity. Maplestone and Mukerji recommend a special mixture with saturated magnesium sulphate.

R.T.L.

259—Japanese Journal of Zoology.

- a. YAMAGUTI, S.—“Studies on the helminth fauna of Japan. Part I. Trematodes of birds, reptiles and mammals. V (1), 1-134. [1933.]

(a) From his extensive collection of helminths made since 1926, Yamaguti has prepared a detailed paper on a large number of trematodes from Japanese birds, reptiles and mammals.

Of the 46 species recorded, 29 are new to science and 6 of these are placed in new genera. The paper is illustrated and numerous additions are made to the existing descriptions of many of the species. The author also, in some cases, records his observations on the life-history and gives full descriptions of the larval stages.

D.O.M.

260—Journal of the American Medical Association.

- a. ASHFORD, B. K., PAYNE, G. C. & PAYNE, F. K.—“Acute uncinariasis from massive infestation and its implications.” CI (11), 843-847. [1933.]

(a) Hookworm disease is becoming, too frequently, regarded as a routine matter for medical officers of health. Attention is here drawn to the possibilities of severe clinical manifestations even to-day, and especially to “the larval phase of uncinariasis” which is accompanied by loss of strength and weight, sallowness, irregular fever, a definitely high eosinophilia and leucocytosis. To this diarrhoea may be added.

R.T.L.

261—Journal of the American Veterinary Medical Association.

- a. SHAW, J. N.—“Some parasites of Oregon wild life.” LXXXIII (5), 599-603. [1933.]
- b. BLEECKER, W. L. & SMITH, R. M.—“Nicotin sulfate as a vermifuge for the removal of ascarids from poultry.” LXXXIII (5), 645-655. [1933.]
- c. REBRASSIER, R. E.—“Bacteria as food for *Oesophagostomum columbianum* larvae.” LXXXIII (6), 787-790. [1933.]

(a) Shaw gives a semi-popular account of some parasites, including helminths, collected from 200 fishes, mainly trout and salmon, several game birds and one deer, from Oregon. Tapeworms and nematodes were very numerous in all species of fish examined, although no losses could be traced to these groups. Flukes, however, produced the heaviest losses especially *Gyrodactylus* sp. in hatchery ponds and *Crepidostomum cooperi* amongst rainbow trout. *Cyticercus tenuicollis* was the principal parasite of the deer.

J.N.O.

(b) Bleeker and Smith have results which indicate that vermifuges which contain nicotine sulphate are effective in removing *Ascaridia lineata* from fowls. In conjunction with kamala, cestodes are also removed.

In the form of Black Leaf 40, nicotine sulphate is a very efficient vermifuge, but its depressant action on the birds and the toxic symptoms that sometimes follow its administration, make its value questionable.

P.A.C.

(c) Rebrassier has studied the food requirements of the larvae of *Oesophagostomum columbianum* and the data derived from his experiments indicate that they utilize living bacteria as food in their development to the infective stage.

In a description of the technique employed the author states how he obtained, free from faeces, the nematode eggs, rendered them free from bacteria, induced hatching in agar cultures of *Bacterium coli* and obtained infective stage larvae. 10 cultures were set up each having approximately 5,000 viable ova placed therein. Average figures showed that 4,546 larvae (90 per cent.) developed to the infective stage, 123 larvae underwent some development and remained alive (after 10 days), 103 developed to some degree but died, and 30 larvae hatched but died without development. Eggs placed on sterile agar, on the other hand, hatched normally but the larvae failed to develop to the infective stage.

J.N.O.

262—Journal of Economic Entomology.

- a. SPRUIJT, F. J. & BLANTON, F. S.—“Vapor-heat treatment for the control of bulb pests and its effect upon the growth of narcissus bulbs.” **XXVI** (3), 613-620. [1933.]

(a) Spruijt and Blanton found that vapour-heat treatment of narcissus bulbs effectively controlled *Tylenchus dipsaci* without injury to the plants.

Bulbs were found to withstand prolonged treatment without detriment, and treatment at lower temperatures, 110°F. to 112°F., definitely stimulated growth. Treatment at 114°F. for 4 hours destroyed all nematodes, higher temperatures being effective with shorter periods of exposure.

M.J.T.

263—Journal of Helminthology.

- a. FAIRLEY, N. H.—“The bilharzia complement fixation reaction in goats infected with *Schistosoma matthei* and *Schistosoma bovis*.” **XI** (4), 181-186. [1933.]
- b. ROBERTSON, D. & FRASER, A. H. H.—“On the incidence of stomach worms in lambs in the north of Scotland and their control by progressive sectional grazing.” **XI** (4), 187-194. [1933.]

- c. IMPERIAL BUREAU OF AGRICULTURAL PARASITOLOGY.—“The helminth parasites of marsupials.” XI (4), 195-256. [1933.]
d. BUCKLEY, J. J. C.—“A note on the development of *Filaria ozzardi* in *Culicoides furens* Poey.” XI (4), 257-258. [1933.]

(a) Fairley has extended the application of the bilharzia complement fixation reaction to *S. mattheei* and *S. bovis*. As the reaction with cercarial antigen (*S. spindale*) has now been applied to 7 different mammalian schistosomes, he considers that its group applicability has been proved.

The sera of 9 goats out of 11 harbouring either *S. mattheei* or *S. bovis* gave positive reactions, the range of fixation varying from 5 to 20 M.H.D. P.A.C.

(b) Robertson and Fraser have observed that heavy losses in lambs in the North of Scotland are due to parasitic gastritis resulting from overstocking coupled with failure to move lambs, showing symptoms of infection, to fresh ground.

Autopsies showed *Ostertagia circumcincta* to exceed *Haemonchus contortus* greatly in numbers and they conclude that parasitic gastritis is mainly due to the former species against which control measures should be directed. As it is much less susceptible to anthelmintic treatment than *H. contortus* a preliminary experiment was carried out to obtain information on 3 points: (i) the extent to which stomach worm infestation could be reduced by a system of progressive sectional grazing; (ii) whether 10 days between shifts was a safe maximum period in reducing *O. circumcincta* infestation; and (iii) the degree to which lambs could become infected when running with their infested dams on clean pasture.

Six ewes and their 12 twin lambs, used as controls, were allowed to graze unconfined over 1½ acres. An equal number of ewes and lambs, similar in age, weight and condition to the controls, grazed one-tenth the same area at a time and were changed at 10 day intervals. Initial faecal examinations showed moderate to heavy *H. contortus* and *O. circumcincta* infestations in all ewes. During the experiment the grass in the ungrazed sections of the experiment plot at the beginning of June was badly trampled by the in-coming sheep, much of it being wasted as food. Lambs of the non-progressional group therefore had a considerable advantage over those of the progressional one.

The experiment, of 3 months duration, ended on 28th August when the lambs were killed and examined post mortem. The average numbers of stomach worms found, per lamb, were:—*H. contortus*, 258 in non-progressional and 2 in progressional animals, the corresponding figures for *O. circumcincta* being 865 and 166. The authors conclude that the lower percentage of reduction in the latter species points to some larvae having reached the infective stage in less than 10 days though they consider this period a safe one for all practical purposes. J.N.O.

(c) Oldham, on behalf of the Imperial Bureau of Agricultural Parasitology, has collected together the names of the helminth parasites of marsupials. He arranges his lists alphabetically first under the names of the parasites and secondly under the names of the hosts. P.A.C.

(d) Buckley, on a recent expedition to the British West Indies, was able to follow up the development of *Filaria ozzardi*, from the early "sausage" stage to an advanced one in the head, in adults of *Culicoides furens* Poey which were fed on 2 carriers of this parasite. Larvae were found in the head of this sand-fly, which the author considers a probable vector, 8 days after the infective blood meal and were seen to emerge at the base of the proboscis under slight pressure with a needle. An examination of 69 inhabitants of Calliaqua, where natural infections in sand-flies were also found, showed 26 to be infected with *F. ozzardi*. The geographical distribution and various attempts, by other workers, to determine the vector of this parasite are briefly discussed. J.N.O.

264—Journal of the Public Health Association of Japan.

- a. TAKASAKI, J.—"Eggs of intestinal parasites found in the dirt under finger nails." IX (5), 1-6. [1933.]

(a) Takasaki has examined the dirt from under the finger nails of 513 school children in 13 towns and villages in the Saitama prefecture, where helminthic infection is prevalent, for eggs of intestinal parasites. 19 individuals harboured eggs, the largest number being found in younger children aged 10-11 years, irrespective of sex. Eggs found were those of *Ascaris* in 2.92, *Enterobius* in 0.78 and *Trichuris* in 0.19 per cent. of children examined. Time of evacuation and the thoroughness of washing hands thereafter, occupation of children's parents and conditions of living all had some relation with the number of eggs found beneath the nails. J.N.O.

265—Journal of the South African Veterinary Medical Association.

- a. MÖNNIG, H. O.—"Recent advances in the knowledge of anthelmintics." IV (4), 206-209. [1933.]

(a) Mönnig considers that the day of carbon tetrachloride is past. It is being rapidly replaced by tetrachlorethylene except for liver fluke in sheep. Hexachlorethane has been used on a large scale in Germany for cattle. n-Butylidene chloride, in doses of 0.3 cc. per kilo, removes 96 to 100 per cent. ascaris and 100 per cent. hookworms in cats and dogs. In horses at the rate of 0.2 to 0.3 cc. per kilo followed by raw linseed oil five hours later it is effective against strongyles. In poultry 2 cc. removes all *Ascaridia*. Hexyl-resorcinol may be very useful in enemas for nodular worm in sheep. Hexyl-meta-cresol avoids the bad qualities of hexylresorcinol. R.T.L.

266—Journal of the Washington Academy of Sciences.

- a. DRECHSLER, C.—"Several more fungi that prey on nematodes." XXIII (7), 355-357. [1933.]
 b. CHRISTIE, J. R.—"The generic names *Cephalobellus* Cobb, 1920 and *Scarabanema* Christie, 1931 (Nematoda)." XXIII (7), 358. [1933.]
 c. WEHR, E. E.—"Descriptions of two new parasitic nematodes from birds." XXIII (8), 391-396. [1933.]

(a) Drechsler describes two fungi which were found attacking free living nematodes.

Specialized organs of capture consisting of hyphal rings are described and it is suggested that these are developed as a response to a tactile stimulus. Cultural experiments indicated that one of these fungi might possibly belong to a species described in an earlier publication, but the systematic position of the fungi concerned is not dealt with.

M.J.T.

(b) Christie states that a comparison of the males of *Cephalobellus papilliger* Cobb, 1920, from the larva of an unidentified lamellicorn beetle collected in N.S.W., Australia, and *Scarabanema cylindricum* Christie, 1931, from the larvae of several scarabaeid beetles, shows them to be identical. *S. cylindricum* therefore becomes a synonym of *C. papilliger* and the genus *Scarabanema* falls as a synonym of the genus *Cephalobellus* which also contains *C. brevicaudatus* (Leidy, 1851) n. comb. and *C. leuckarti* (Hammer-schmidt, 1838) n. comb.

J.N.O.

(c) Wehr gives a description, from male and female specimens, of *Amidostomum cygni* n. sp. taken from underneath the tunic lining of the gizzard of a whistling swan, *Cygnus columbianus*, which died at the National Zoological Park, Washington, D.C. Including the above the genus *Amidostomum* contains 10 species, which are discussed, and a key to the 8 well described species is given. *Pectinospirura argentata* n. g., n. sp. is also described from males and females obtained from the proventriculus of a herring gull, *Larus argentatus smithsonianus* at Vineland, New Jersey and a laughing gull, *L. atricilla* at Washington, D.C. The parasite belongs to the Acuariinae and differs from other genera in this subfamily in the structure of the cervical papillae, which are located at the base of the cordons. Each papilla consists of a transverse row of about 20 posteriorly directed spines and this feature differentiates the new genus from the closely related *Synhimantus* in which the papillae are tricuspid. A key to the genera of the Acuariinae is given.

J.N.O.

267—Kleintier und Pelztier. Illustrierte Rundschau.

- a. SCHROEDER. — "Bekämpfung der Eingeweideparasiten bei Hunden." IX (9), 187-188. [1933.]
- b. SCHROEDER, H. — "Über die Verbreitung der Spulwürmer bei Hunden." IX (12), 277-278. [1933.]

(a) Schroeder briefly opposes the frequently held view that dogs need not be treated for ascarids and tapeworms unless those parasites are giving rise to definite symptoms. Parasites compete for the available food supply and also lower the dog's resistance to other diseases. Even a single ascaris may occlude the bile duct or perforate the gut.

B.G.P.

(b) Over the name Schroeder is here published an account of the same investigation (incidence of ascarids in dogs in Berlin) as was reported in *Tierärztliche Rundschau* a month previously by Schulz. [See Helm. Abs., II, No. 289a.]

B.G.P.

268—Medizinische Klinik.

- a. LÜDTKE, H. — "Vergleichende Untersuchungen ueber das Ol. Chenopodii und sein wirksames Prinzip, das Askaridol." XXIX (18), 611-613. [1933.]

(a) The rapid efficacy of chenopodium oil may be marred by serious toxic effects. The active principal, "Ascaridol," has the formula $C_{10}H_{16}O_2$;

an "Ascaridol-free" substance soluble in castor-oil shows anthelmintic properties also.

Lüdtke has compared the toxic action of the ascaridol-free fraction with that of ascaridol and chenopodium oil using varying dilutions (1 : 500-1 : 10,000), on earthworms, pig ascaris, stickleback and vinegar eelworms. A table is appended giving the time in minutes preceding paralysis and death of the animals under the influence of these drugs. In dilutions below 1 : 500 the animals died more rapidly under the influence of "ascaridol-free substance" than under that of chenopodium oil. Ascaridol gave less uniform results but acted more slowly than the chenopodium oil. The action of the drugs on children's blood, on milk and on subcutaneously injected guinea-pigs was also investigated. Spectroscopy showed that blood was affected more rapidly by ascaridol-free substance than by chenopodium oil and also that the former increases the acidity of milk and retards its coagulation more rapidly than does the latter. Histological examination of the injected guinea-pigs showed that the "ascaridol-free substance" had a more intense general effect than chenopodium while the latter affected the internal organs, especially the lungs, more acutely.

The order of efficacy is thus, unexpectedly, ascaridol-free fraction, chenopodium oil, ascaridol.

S.G.S.

269—Mémoires de l'Académie Polonaise des Sciences et des Lettres. (Classe des Sciences Mathématiques et Naturelles.)

- a. MARKOWSKI, S.—"Badania nad fauną helmintologiczną krukowatych (Corvidae) Polski." [Untersuchungen über die Helminthenfauna der Raben (Corvidae) von Polen.] Série B., Sciences Naturelles No. 5 [Reprint 65 pp.] [1933.]

(a) Markowski deals with the helminth parasites of *Corvidae* in Poland. 6 species of trematodes, 4 species of cestodes, and 6 or 7 species of nematodes are systematically described and illustrated; none of them are new.

B.G.P.

270—Münchener Medizinische Wochenschrift.

- a. BRUNS, H.—"Die Ankylostomiasis im deutschen Steinkohlenbergbau: ein überwundenes Problem." LXXX (11), 425-430. [1933.]
 b. BERGMANN, O.—"Oleum Chenopodii als Ursache einer Gehörstörung." LXXX (19), 734-735. [1933.]
 c. BRÜNING, H.—"Eingeweidewürmer und deren extraenterales Vorkommen mit besonderer Berücksichtigung des Kindesalters." LXXX (45), 1765-1766. [1933.]
 d. KNÖTZ, I.—"Zur Erkennung der Wurmkrankheit." LXXX (49), 1947-1948. [1933.]

(a) Hugo Bruns gives a long history of the successful hookworm campaign in the Rhenish and Westphalian coal districts of N.W. Germany, where the disease dates back to its introduction in 1880 by Italian workmen from the St. Gotthard tunnel. Its helminthic nature was established in 1892 after which date the incidence rapidly increased until, in 1902 nearly 50 per cent. of officials and 40-45 per cent. of workmen in the mines were infected. Since 1902 when the campaign started the incidence has steadily decreased and by 1908 it had become negligible, but applicants for employment in the mines

still undergo a routine examination. During the preliminary campaign in the Ruhr, 8 million stool examinations were made and 40-50,000 patients treated. Great success has also been reported from the campaign run on similar lines in the Liège district of Belgium. The paper ends with a summary of the geographical distribution of *Ankylostomiasis*. S.G.S.

(b) Treatment of a patient suffering from tapeworm with chenopodium oil and novocaine, administered with black coffee and a herring, produced serious aural disturbances which have gone on for a year. Details of a clinical otological examination are given. The tympanum and labyrinth were normal, the affected organ being the auditory nerve. The writer recommends great care in the use of chenopodium oil. S.G.S.

(c) Brüning first describes the medicinal therapeutics of *Taenia* and of roundworm infections in the alimentary tract of children. He then proceeds to record rare cases of penetration of liver and pancreas by *Taenia* via the bile and pancreatic ducts, including one case of cholecystitis thus caused. The escape of ascarids from the mouth, nose and anus of children is mentioned and examples are given of the penetration of the liver and bile duct, pancreas, etc., by ascarids from the intestine and duodenum, leading to closure of bile duct, liver abscess, umbilical abscess, pancreatitis and peritonitis, including a case of umbilical fistula in a 25 day old infant. The writer believes that such worms penetrate not only diseased gut-wall and postoperative lesions, but also the healthy gut, thus causing peritonitis. Extra-enteric helminthiasis of this kind calls for surgical intervention and many of the cases mentioned were successfully dealt with by laparotomy. S.G.S.

(d) Discussing the symptomatology of helminthiasis, Knotz states that there is frequently a zone of sensitivity on the left side of the abdomen and, associated with this, headache on the left side. This suggests that the pancreas may be involved as a detoxicating organ. Painful symptoms may simultaneously occur in the parotid glands and (in females at least) in the genitalia. B.G.P.

271—Münchener Tierärztliche Wochenschrift.

- a. SEIFRIED, O.—“Die Zusammenhänge zwischen A-Avitaminose, Infektion und Parasitismus bei Hühnern.” LXXXIV (45), 540-544. [1933.]
- b. SCHMID, F.—“Zur Identität der Kälberaskariden.” LXXXIV (47), 569-571. [1933.]

(a) In summarizing the data available as to the effect of A. avitaminosis, infection and parasitism in chickens, Seifried devotes a section to the gut parasites, including helminths.

There is definite evidence that the degree of infestation with *Ascaridia lineata* and with *Davainea proglottina* is significantly affected by the vitamin A content of the diet. It is, as yet, impossible to explain this as we know so little about the nutrition of these parasites. P.A.C.

(b) On the basis of macroscopic, or at least obvious, morphological characters, Schmid maintains that *Ascaris vitulorum* in cattle is not the same species as *A. lumbricoides*.

In *A. vitulorum* the lips are set off from the rest of the body which forms a distinct shoulder at its junction with them. Moreover, the tail bears in both sexes a small conical appendage. In *A. lumbricoides* the head and tail have not these marked changes of contour. Moreover, in *A. vitulorum* the oesophagus bears an appendage or ventriculus, and the eggs are larger and more nearly circular with superficial markings more like those on the egg of *Belascaris marginata*. Schmid unsuccessfully attempted to infest a calf with embryonated *A. vitulorum* eggs. Finally, the distributions of the two species are not coincident. B.G.P.

272—Nederlandsch-Indische Bladen voor Diergeneeskunde.

- a. BUBBERMAN, C. & KRANEVELD, F. C.—“Over een dermatitis squamosa et crustosa circumscripta bij het rund in Nederlandsch-Indië, genaamd cascado. I. Onderzoekingen over aard en wezen der cascado.” XLV (4), 239-278. [1933.]
- b. IHLE, J. E. W. & IHLE-LANDENBERG, M. E.—“Over een dermatitis squamosa et crustosa circumscripta bij het rund in Nederlandsch-Indië, genaamd cascado. II *Stephanofilaria Dedoesi* (n. gen. n. sp.), een nematode uit de huid van het rund.” XLV (4), 279-283. [1933.]
- c. KRIJGSMAN, B. J.—“De in zoogdieren en vogels parasiteerende wormen van Nederlandsch-Indië.” XLV (4), 366-379. [1933.]

(a) Bubberman and Kraneveld describe a verminous dermatitis of cattle known as “Cascado.”

The disease has been recorded from North Celebes and South Sumatra and is probably identical with the “dermatitis verminosa pruriens bovis” of De Does (1907) described from the East Coast of Sumatra. The disease is not known to occur in buffaloes but in cattle the incidence may be 90 per cent. Poor condition and high rainfall are predisposing factors. Lesions from a few millimetres to 25 cm. in diameter occur on various parts of the body, particularly the sides of the neck, the withers, dewlap, shoulders and around the eye. A number of small papules coalesce to form a large lesion covered with crusts, the hair falls out and the skin thickens but it is rich in blood and lymph which can be squeezed out readily. The lesion extends outwards while the centre becomes hard and covered with a thick, dry crust. Itching causes rubbing which aggravates the lesion. Spontaneous recovery may occur. Microfilariae are numerous in deep scrapings taken after removal of the crusts; in some cases microfilariae were found in the blood but their identity has not been established. The histological changes agree with the description given by De Does. The causal parasite, *Stephanofilaria Dedoesi*, lives in the epithelial layers and produces an inflammation of the rete Malpighii with proliferation and destruction of epithelial elements, destruction of hair follicles and skin glands, and a small cell infiltration. The parasites are probably transmitted by blood-sucking insects. Direct transmission was attempted but without success. H.M.

(b) Ihle and Ihle-Landenberg give a description of the nematode *Stephanofilaria Dedoesi* of cattle, which they place in the new genus *Stephanofilaria* of the subfamily Setariinae. Male 2.3-3.2 mm., female 6.1-8.5 mm. long. Oral aperture surrounded by a protruding cuticular rim which has a denticulate edge. Near to the anterior extremity there is a circular thickening which bears a number of small cuticular spines. Male spicules unequal. Female without anus. The parasites were removed from lesions of verminous dermatitis. H.M.

(c) Krijgsman sets out a check-list of helminths recorded from the domestic and a few wild animals in the Dutch East Indies. The parasites are arranged according to their hosts and synonyms are given as well as location in the body and the literature of the original records. H.M.

273—North American Veterinarian.

- a. LAW, R. G. & KENNEDY, A. H.—“*Echinococcus granulosus* in a moose.” XIV (10), 33-34. [1933.]
- b. BOURNE, R. F.—“Two specimens of triradiate cestodes from a dog.” XIV (10), 43-44. [1933.]
- c. SPINDLER, L. A.—“Field studies of the larvae of nodular worms of swine, with suggestions for control.” XIV (11), 37-44. [1933.]
- d. SCHNELLE, G. B.—“Eosinophilia associated with whipworms in a dog.” XIV (11), 53. [1933.]

(a) Law and Kennedy report a heavy infestation of an adult moose with *Echinococcus granulosus*. Before being shot the animal was observed to have a thin scanty coat and to be very weak. Post mortem examination showed the muscle tissue pale and oedematous and the normal lung tissue almost completely replaced with cysts, easily recognized by their elevated appearance on the lung surface, containing numerous scolices. Tuberculosis had been suspected. J.N.O.

(b) Bourne reports the occurrence of two aberrant forms, as well as normal specimens, of *Multiceps serialis* in a dog's intestine. Both tapeworms were triradiate, each scolex having 6 suckers and showing a total of 34 hooks divided equally in two rows. 30 or more previous cases of polyradiate cestodes, including this and other species, have been reported in literature according to the author, who quotes Baker's opinion that such forms arise from a double embryo produced by partial separation of the early blastomeres and not by fusion of two normal embryos. J.N.O.

(c) Very considerable losses are sustained by farmers in the southern regions of the United States from nodular worms in swine. The infective larvae of *Oesophagostomum longicaudum* and *Oe. dentatum* penetrate the mucous membrane of the caecum and colon and cause extensive injury, and ulceration results from subsequent bacterial invasion.

Spindler has ascertained from an examination of infected pastures that the larvae occur only where they are protected from light and desiccation and most frequently beneath piles of pig faeces. The overcrowding commonly found at farrowing time results in a very heavy concentration of faeces and the accumulation of infective larvae. Infected fields can remain infective for a period of over 18 months. Underfed pigs are constantly foraging and rooting over contaminated ground for extra food. They become therefore much more heavily infected than those with a sufficient and well balanced diet.

R.T.L.

(d) An eosinophilia of 71 per cent. is recorded in an English setter in which there was a heavy whipworm infection with intermittent soft, mucous stools, loss of weight and anaemia. The diagnosis was based on the finding of great numbers of eggs in the stool. The blood examination was made about 3 weeks after the dog had been treated with Santonin. R.T.L.

274--Parasitology.

- a. HARPER, W. F.—“A cysticeroid from *Helodrilus* (*Allolobophora* *longus* Cede) and *Lumbricus terrestris* L.” xxv (4), 483-484. [1933.]
- b. WOODLAND, W. N. F.—“On two new cestodes from the Amazon siluroid fish *Brachyplatystoma vaillanti* Cuv. and Val.” xxv (4), 485-490. [1933.]
- c. WOODLAND, W. N. F.—“On a new subfamily of Proteocephalid cestodes—the *Othinoscolecinae*—from the Amazon siluroid fish *Platystomatichthys sturio* (Kner),” xxv (4), 491-500. [1933.]
- d. CANAVAN, W. P. N.—“A redescription of *Distomum incommodum* Leidy, from *Alligator mississippiensis*, and creation of a new genus (*Homoscaphis*) for it.” xxv (4), 501-509. [1933.]
- e. HUNTER, G. W. III.—“The strigeid trematode, *Crassiphiala ambloplitis* (Hughes 1927).” xxv (4), 510-517. [1933.]
- f. TALBOT, S. B.—“Life history studies on trematodes of the subfamily Reniferinae.” xxv (4), 518-545. [1933.]

(a) Harper describes the occurrence of 4 cysticeroids in a *Helodrilus* (*Allolobophora*) *longus* and 2 similar larvae in a *Lumbricus terrestris* from the Dundee and Arbroath districts of Scotland. Following a brief description of the parasite, the author notes that although the cysticeroids were not fed to a suitable host, from which the corresponding adults could have been obtained for the purposes of identification, they agree closely in number and shape of hooks with *Dilepis undulata* Schr., a common parasite of blackbirds, thrushes, starlings and other birds. J.N.O.

(b) Woodland describes two new cestodes from *Brachyplatystoma vaillanti*, a siluroid common in the Amazon river. A Phyllobothrid, *Anthobothrium piramutab* n. sp., was found in 4 out of the 22 fish examined and is the first to be described from a fresh-water fish and a siluroid. *Goezeella piramutab* n. sp., recovered from one fish, is very closely related to *G. siluri* Fuhrmann, 1915. The author considers that the only character which easily and clearly differentiates these two species, which are the sole representatives of the genus, is the intra-uterine egg, measurements of which are given. J.N.O.

(c) Woodland describes 4 new cestodes from 3 specimens of *Platystomatichthys sturio*, an Amazon siluroid fish locally known as the “Lenha.” To receive *Othinoscolex lenha* n. g., n. sp. he has created a new subfamily, the *Othinoscolecinae*. The author, elsewhere [see Helm. Abs., II, No. 282a], has recently suggested a new basis for the classification of the Proteocephalidæ and this subfamily, which is defined, is now added as a sixth one. A second species, *Othinoscolex myzofer* n. sp. is also described and is compared with that mentioned above. The other forms dealt with are *Monticellia lenha* n. sp. and *Proteocephalus lenha* n. sp. J.N.O.

(d) Canavan, after giving the chronological history of the fluke *Distomum incommodum* Leidy, redescribes it from specimens taken from the thorax of *Alligator mississippiensis* from St. Petersburg, Florida. The author finds the trematode belongs to the family Clinostomidae and a new genus *Homoscaphis*, a diagnosis of which is given, is erected for it. J.N.O.

(e) Hunter describes investigations into the life history of the Strigeid trematode, *Crassiphiala ambloplitis*, metacercariae of which were recovered from the small-mouthed black bass, *Micropterus dolomieu*.

In a recapitulation of feeding experiments with 2 belted kingfishers, *Streptoceryle alcyon*, the author shows that eggs of the parasite were first detected in the faeces about 27 days after the metacercariae were fed and considers that this period is required for flukes to reach sexual maturity. Natural infections present in the 3 control birds are discussed as well as similar infections which apparently were found in the experimental hosts. Data on the distribution of the metacercariae in different fish hosts are given and the morphology of the adult trematode is described. In a discussion the author alludes to the systematic relationship of this parasite and draws attention to the differences between it and the related *C. bulboglossa*.
J.N.O.

(f) Talbot has studied experimentally the complete life histories of 3 trematodes, *Lechriorchis primus*, *L. tygarti* n. sp. and *Caudorchis eurinus* n. g., n. sp. Diagnoses of the new genus and species are given. The flukes belong to the Reniferinae and the author points out these are the first complete life histories to be worked out in this subfamily.

Four species of *Physella* were found to serve as the first intermediate host, and tadpoles of two frogs, as the second intermediate host. The definitive hosts for all 3 flukes were found to be *Thamnophis sauritus* and *T. sirtalis*, two species of Garter snakes.
J.N.O.

275—Philippine Agriculturist.

- a. JESUS, Z. de.—“The resistance of the eggs and larvae of swine kidney worm, *Stephanurus dentatus* Diesing, with special reference to the control of stephanuriasis.” XXI (10), 677-694. [1933.]

(a) Jesus describes experiments which he has carried out to determine the resistance of eggs and larvae of *Stephanurus dentatus* to various conditions with a view to finding some practical methods of controlling stephanuriasis by using cheap and easily obtainable materials.

Eggs lost their vitality after an exposure of (a) 24 hours to a 4 per cent. solution of crude common salt, (b) 24 hours to a 1 : 10,000 solution of commercial quality copper sulphate and (c) 15-30 minutes to a 1 per cent. solution of creolin (Jeyes' Fluid). Larvae, of the pre-infective stage, were killed after an exposure of (a) 11 hours to a 3 per cent. solution of crude common salt, (b) 20 hours to a 1 : 10,000 solution of copper sulphate, and (c) 15-30 minutes to a 1 per cent. solution of creolin. Exposure of eggs to dryness in bright sunlight for 30 minutes and in the shade for 9 hours also destroyed their vitality.

The author concludes, on the basis of his experimental data, that for spraying wet places in pig pens a 5 per cent. solution of crude common salt or a 1 : 5,000 solution of copper sulphate should be used to give allowance for dilution. Further, the use of solutions of creolin, for spraying, and of common salt (4 per cent.) or copper sulphate (1 : 10,000) in mud holes and wallows in pig pens will be effective if repeated every 4 days. The author also determined the longevity of the infective larvae to be 56 days or probably longer under more favourable conditions.
J.N.O.

276—Philippine Journal of Science.

- a. FAJARDO, T. G. & PALO, M. A.—“The root-knot nematode, *Heterodera radiculicola* (Greef) Müller, of tomato and other plants in the Philippine Islands.” LI (4), 457-481. [1933.]
- b. TUBANGUI, M. A. & PASCO, A. M.—“The life history of the human intestinal fluke, *Euparyphium ilocanum* (Garrison, 1908).” LI (4), 581-606. [1933.]
- c. TUBANGUI, M. A. & VILLAAMIL, R.—“Nematodes in the collection of the Philippine Bureau of Science, I. Oxyuroidea.” LI (4), 607-613. [1933.]

(a) Fajardo and Palo record the presence of a widespread infection of *Heterodera radiculicola* in the Philippines where many important crops are attacked, the nematode being active all the year round.

The following plants were found to be resistant to attack :—rice, corn, garlic, onion, peanuts, sincamas and seguidilla ; the small fruited types of tomatoes were more resistant than other varieties. No evidence of the formation of biologic strains was found. Flooding for thirty-five to forty days decreased but did not destroy the infection ; air desiccation for twenty-five to thirty-five days was effective in destroying all nematodes in infected soil, though a much shorter period of desiccation sufficed to kill nematodes under laboratory conditions.

M.J.T.

(b) Tubangui and Pasco have traced the life history of the echinostome fluke *Euparyphium ilocanum*. The first intermediary is the small planorbid *Gyraulus prashadi* Faustino. The cercariae thereafter encyst in any of the common Philippine freshwater snails. As the ampullarid is the most commonly eaten snail in the Philippines, Tubangui and Pasco consider it the chief source of infection in man. A full description of the larval stages is given. White rats, a cat and two monkeys were experimentally infected. Tubangui previously (1931) had reported this fluke from wild rats.

R.T.L.

(c) Three new Oxyurids are described, viz., *Subulura cynomolgi* n. sp., from the Philippine macaque, nearly related to *S. malayensis* Lee 1930, *Spironoura duyagi* n. sp., from *Cyclemis amboinensis*, intermediate between *S. affine*, *S. onama* and *S. siamense*, and *Cissophyllus leytenensis* n. sp. from the herbivorous lizard *Hydrosaurus pustulosus*.

R.T.L.

277—Proceedings of the Imperial Academy, Tokyo.

- a. TANIGUCHI, R.—“Notes on the chemotactic response of *Rhabditis filiformis* Bütschli.” IX (8), 432-435. [1933.]

(a) Taniguchi records, from experimental observations, the chemotactic responses of *Rhabditis filiformis* towards different chemicals and dyes in varying concentrations. Acids attracted the nematodes more than alkalis and inorganic acids more so than organic. The behaviour of the worms appeared to be independent for most of the 20 salts used except solutions of KMnO_4 (0.02 per cent.), AgNO_3 (0.003 per cent.), HgCl_2 (0.05 per cent.), Alum (0.05 per cent.) and CuSO_4 (0.1 per cent.) to which they showed a negative response. Slight attraction was noted towards capillary-active substances such as methyl and ethyl alcohols but not to chloroform which caused the nematodes to cease moving and discharge ova. 10 dyes, whether acid or basic, appeared to present no attraction.

J.N.O.

278—Proceedings of the Royal Physical Society.

- a. CAMERON, T. W. M. & PARNELL, I. W.—“The internal parasites of land mammals in Scotland.” xxii (3), 133-154. [1933.]

(a) To assess the potential danger of wild animals to farm stock in Scotland, Cameron and Parnell have made a survey of the helminths of Scottish mammals, including various deer, wild goats, wild carnivores, rodents and insectivores. A list of parasites with their wild and (in some cases) domesticated hosts concludes the paper.

New forms mentioned include *Oxyuris* (s.l.) *capreoli* n. sp., *Oesophagostomum sikae* n. sp., *Capillaria mustelorum* n. sp., *Strongyloides mustelorum* n. sp., *Viannaia morenishi* n. sp., and *Spiruroides erinacei* n. g., n. sp. J.N.O.

279—Proceedings of the Society for Experimental Biology and Medicine.

- a. DUNLAP, G. L. & WELLER, C. V.—“Pathogenesis of trichinous Myocarditis.” xxx (9), 1261-1262. [1933.]

(a) Dunlap and Weller artificially infested rats with trichinous meat, and killed and examined them at intervals, with a view to elucidating the aetiology of the myocarditis which is usually the cause of death in fatal human trichinosis. Previous workers have failed to find encysted larvae in the heart and have ascribed the myocarditis to blood-borne toxins. The present authors found that larvae were present in the myocardium but were not encysted, although encysted larvae were present in the skeletal muscles. They thus reject the toxic theory. B.G.P.

280—Publications. Carnegie Institution of Washington.

- a. SANDGROUND, J. H.—“Certain Helminthic and Protozoan parasites of man and animals in Yucatan,” in Shattuck & Sandground “The Peninsula of Yucatan Medical, Biological, Meteorological and Sociological studies.” No. 431, pp. 228-248. [1933.]

(a) Sandground has conducted an enquiry into the degree of parasitosis in the State of Yucatan among man and animals. He describes succinctly those features of parasitism which are peculiar to the State. He has evidence that the dog is a potential primary or intermediate host of *Taenia solium* but considers that it is only an accidental host and may be disregarded as a factor in the spread of human taeniasis. P.A.C.

281—Quaderni Radiologici.

- a. CHIZZOLA, G.—“Contributo allo studio della cisticercosi umana nel vivente.” iv (1), 15-21. [1933.]

(a) Chizzola describes a human case of cysticercosis diagnosed radiographically during life. There was a history of epileptiform seizures, but no shadows ascribable to *Cysticercus cellulosae* were found in a skiagram of the cranium. Numerous calcified cysts were demonstrated, however, in the arms and legs but not in the hands and feet. The fact that none of these were palpable suggests a muscular rather than a subcutaneous location. The brain

is commonly held to be the most usual site for these parasites in man, but this may be merely because cerebral symptoms are so much more marked than muscular symptoms. The present case had harboured the adult *Taenia solium* 4 years before the onset of the nervous syndrome in 1924. [Five skiagrams are reproduced.] B.G.P.

282—Quarterly Journal of Microscopical Science.

- a. WOODLAND, W. N. F.—“On the anatomy of some fish cestodes described by Diesing from the Amazon.” LXXVI (2), 175-208. [1933.]

(a) Six species of cestodes, described from Amazonian fish by Diesing in 1850, are redescribed by Woodland, viz., *Zygobothrium megacephalum*, *Ephedrocephalus microcephalus*, *Peltidocotyle rugosa*, *Amphoteromorphus peniculus*, *Sciadocephalus megalodiscus* and *Proteocephalus macrophallus* (= *Taenia macrophalla*).

Woodland modifies his classification of the Tetraphyllidea and regards the Phyllobothriidae and Onchobothriidae as one family, abolishes the Monticelliidae and includes the Tetrarhynchidae (usually regarded as a distinct order). This results in 6 families. The author discusses a provisional reclassification of the Proteocephalidae to include 5 subfamilies (Proteocephalinae, Zygobothriinae, Marsypocephalinae, Ephedrocephalinae and Monticelliinae) which are defined. Most of the genera included in these subfamilies are redefined. In an addendum the author briefly replies to criticisms of suggestions made by him in 1929 apropos the classification of the Tetraphyllidea. J.N.O.

283—Revue Suisse de Zoologie.

- a. DUBOIS, G.—“Revision des Hémistomes.” XL (2), 211-215. [1933.]
b. BAER, J. G.—“Note sur un nouveau trématode, *Clinostomum lophophallum* sp. nov. avec quelques considérations générales sur la famille des Clinostomidae.” XL (3), 317-342. [1933.]

(a) Dubois gives a brief historical survey of the taxonomy of the Hemistomes from Rudolphi down to the current classification of La Rue (1926). The latter recognizes only one family, the Strigeidae, including the Holostomes, Hemistomes and Diplostomes, and two subfamilies of Hemistomes (*Polycotylinae* and *Alariinae*) differing in the form of the adhesive organ.

Dubois now excludes the Hemistomes from the Strigeidae and assigns them to the family Alariidae comprising three subfamilies, viz., the Alariinae (*Alaria* and *Pharyngostomum*), the Polycotylinae (*Polycotyle*) and the Neodiplostominae subfm. nov. for all other genera. The paper is illustrated by diagrams of 12 genera representing all 3 subfamilies. S.G.S.

(b) Baer describes and figures *Clinostomum lophophallum* n. sp. from the mouth of the purple heron, *Phoyx purpurea*, from Macassar; he also gives diagnoses of the family Clinostomidae, and its subfamilies, genera and species, together with dichotomous keys. B.G.P.

284—Science.

- a. BERWICK, P.—“An apparatus for dehydrating nematodes.” LXXVIII (2023), 312-313. [1933.]
- b. AYERS, H.—“A nematode parasite in myxinoids.” LXXVIII (2029), 459. [1933.]
- c. KRULL, W. H.—“A new intermediate host for *Fascioloides magna* (Bassi, 1873), Ward, 1917.” LXXVIII (2031), 508-509. [1933.]

(a) Berwick has designed an instrument for dehydrating nematodes, especially those possessing very thick cuticula for which the process of dehydration must be carried out gradually to avoid collapse of the specimens. Solutions of increasing alcohol content are made to flow past the worms. Intending users of this somewhat complicated apparatus should consult the original description, which gives the dimensions of the various components and contains an explanatory sketch. J.N.O.

(b) In studying *Bdellostoma* Ayers found nematodes, in colonies numbering up to 100 or more, parasitic in the dorsal part of the large subdermal blood sinus in the head region. Specimens of the parasite submitted to Steiner in 1928 were identified by him as *Tetanonema strongylurus* representing a new genus and species. Recently Ayers has found that the parasite larvae leave the parent *Bdellostoma* in its eggs and may be found within the growing myxinoid embryo, before as well as after hatching, coiled in the gill tissues. How the nematodes enter the egg and at what stage in its growth is unknown but they go in before the micropyle is fully formed. No adult worms have been found in the gills. This, so far as the author knows, is the sole animal parasite occurring in the myxinoids. J.N.O.

(c) Krull reports that the snails *Fossaria modicella*, *Fossaria modicella rustica*, *Pseudosuccinea columella*, and *Galba bulimoides techella* have been experimentally infected with *Fascioloides magna*. Complete development requires 60 days. The distribution of one or other of these snails corresponds with that of the known prevalence of this fluke in North America, viz., Arkansas, California, Illinois, Iowa, Kansas, Michigan, Minnesota, Montana, New York, Oklahoma, Texas, Wisconsin and the Canadian provinces of British Columbia and Alberta. The work continues the earlier investigations of Sinitsin in 1930. R.T.L.

285—Semana Médica.

- a. FRANZANI, O. F.—“Hallazgo de huevos de *Taenia saginata* en las materias fecales de los portadores.” XL (41), 1132-1133. [1933.]

(a) Combining his own data with those previously published in this periodical by Bacigalupo, Pardina and Alcaraz respectively, Franzani finds that, in 46 faecal examinations in which segments of *Taenia saginata* were present, free eggs were also to be found in each case. B.G.P.

286—Taiwan Igakkai Zasshi.

- a. MAYEOZOKO, S.—“Ueber Fälle von geheilter Haematochylurie und Chylurie, sowie ueber kleine Experimente betreff der Widerstandsfähigkeit der Larven von *Filaria bancrofti* gegen Arzneimittel und Hitze.” xxxii (3), 32. [1933.]
- b. KIRIBAYASHI, S.—“Studies on the growth of *Hymenolepis nana*, with special reference to the possibility of differentiation of *H. nana* var. *fraterna* (Stiles).” xxxii (9), 117-118. [1933.]

- c. WAKESHIMA, T.—“Experimental studies on the tropisms of mature larvae of Ancylostomidae. II. Report: especially on the hydrotropism of *Ancylostoma caninum*.” xxxii (9), 125-128. [1933.]
- d. WAKESHIMA, T.—“Experimental studies on the tropisms of the mature larvae of Ancylostomidae. III. Report. Investigations on the chemotropisms of the mature larvae of *Ancylostoma caninum*.” xxxii (10), 133-136. [1933.]
- e. WAKESHIMA, T. & ABE, S.—“Report on mass treatment of hookworm disease, especially on the effect of anthelmintics.” xxxii (10), 138-139. [1933.]
- f. YOSHINO, K.—“Studies on the post-embryonal development of *Taenia solium*, Pt. I.” xxxii (10), 139-141. [1933.]

(a) Mayezoko finds that antimonial, potassium picrate, quinine hydrochloride, trypanflavin, neoneoarsenine and potassium iodide are less effective in killing microfilariae when used individually than when administered as mixtures. He observed also that the larvae have little resistance to heat, being killed in an hour by 40-43°C. and in ten minutes by 48°C. J.J.C.B.

(b) Kiribayashi successfully infected man, rats, and mice with *Hymenolepis nana* of human origin and *H. nana* var. *fraterna* (Stiles) of rat origin directly without an intermediate host. He found that the length and width of the two forms may differ in different hosts but in the same host no biological or morphological differences were noted. He concludes that the two forms cannot be differentiated. He also investigated the effect on the egg of *H. nana* of artificial intestinal juices, normal saline, 0.3 per cent. HCl, and 0.3 per cent. NaHOC₃. After 48 hours in the intestinal juices or in 0.3 per cent. NaHCO₃, the six-hooked larva began to move inside the egg-shell but did not hatch. At a temperature of 37-38°C. the larvae became more motile.

J.J.C.B.

(c) Wakeshima investigated the question of hydrotropism in hookworm larvae and concluded that they are not subject to it. His conclusions are based on the following observations:—(i) On gradual evaporation of moisture from a soil culture, larvae became less active and finally motionless in the same spot without attempting to reach a moister place. (ii) In an abundant soil culture many larvae migrate up the sides of the culture vessel from a culture kept moist. (iii) On a sloping agar plate, on which moisture is evaporating from one side to the other giving a border between a moist and a dry surface, larvae migrated from the moist to the dry surface. (iv) On a large agar plate, one part of which was covered by water and the other part kept moist, larvae placed on the moist surface near the junction did not migrate in larger numbers towards the water than in the opposite direction. (v) Larvae in a drop of water in an agar plate, crept out of the drop if its edge was shallow enough to expose the larvae to the air. (vi) The edge of a moist surface on an agar plate was caused by evaporation by an electric fan, to move at a speed of 1-2 cm. per hour. Larvae on the moist surface did not change their position with the movement of the edge, but most of them remained in the same place even when it began to dry.

J.J.C.B.

(d) The infective larvae of *Ancylostoma caninum* show a marked degree of chemotropism towards canine bile, blood and tissue extract. Arterial and venous blood gave no contrasts. Identical results were obtained with oxygen and carbonic acid gas. There was marked negative tropism to various strong chemicals.

R.T.L.

(e) In rural Formosa, Wakeshima and Abe found that carbon tetrachloride and oil of chenopodium given simultaneously were effective in doses between 1.87 cc. of the former and 0.6 cc. of the latter as minima, and 2.7 cc. of the former and 1 cc. of the latter as maxima. Smaller doses were somewhat unsatisfactory while larger doses had undesirable reactions. R.T.L.

(f) Yoshino describes in detail the process of hatching of the eggs of *Taenia solium* as observed by him *in vitro* and in the duodenum of experimental animals. R.T.L.

287—Technical Bulletin. United States Department of Agriculture.

- a. NIGHBERT, E. M. & CONNELLY, J. W.—“Effectiveness of the swine sanitation system in the South.” No. 374, 14 pp. [1933.]

(a) Nighbert and Connelly have examined the effectiveness of the McLean system of swine sanitation with modifications which mainly consist in farrowing both spring and autumn litters on pasture in temporary shelters rather than in permanent farrowing houses.

Under their modified system sows produced 6.5 pigs per litter, the daily average gains were 0.63 lbs. and, excluding accidental deaths, only 5.5 per cent. were lost. Control sows produced 6.0 pigs per litter, with average daily gains of 0.57 lbs. while 18 per cent. were lost from disease. Post mortem examinations showed 75.2 and 93.5 per cent. of parasitized livers, 31.8 and 49.7 per cent. kidney worm infestation, and 76.3 and 82.9 per cent. ascarid infestation respectively in sanitation and control animals. J.N.O.

288—Tidsskrift for Planteavl.

- a. ANON.—“Plantesygdomme i Danmark 1932. Oversigt, samlet ved Statens plantepatologiske Forsøg.” [Plant diseases and pests in Denmark 1932.] xxxix (3), 453-506. [1933.]

(a) A list is given of host plants and their parasites recorded during the period in Denmark.

Heterodera schachtii attacking wheat, oats and barley in many districts has caused such damage that the cultivation of these cereals must be decreased. This parasite has also occurred on beet. *Tylenchus dipsaci* has been found on red clover, lucerne, beet and phlox, *Heterodera radicola* on callistephus, iris and tomatoes, *Aphelenchus ritzema-bosi* on chrysanthemums and *Aphelenchus olesistus* on Saint Paulia and Sinningia. M.J.T.

289—Tierärztliche Rundschau.

- a. SCHULZ.—“Zur Diagnostik und Statistik der Ascariasis bei Hunden.” xxxix (47), 779. [1933.]
b. KORKHAUS.—“Zur parasitologisch-klinischen Bewertung einer Anthelmintika. II. Arecolinum hydrobromicum bei Hunden und Katzen.” xxxix (48), 794-799. [1933.]

(a) Schulz draws attention to the importance of ascarids in causing disease in young dogs. An examination in Berlin of the faeces of 942 dogs showed an incidence of 45.5 per cent. in whelps up to 3 months old, declining

to 1.7 per cent. in dogs between 2 and 3 years old. The average incidence was 13.9 per cent. These ascarids not only compete with their host for the available food supply, but also exert a very harmful effect by means of toxic substances which they elaborate. B.G.P.

(b) Korkhaus gives a long account of an experiment in which 62 dogs and 6 cats, all parasitized by helminths, were treated with arecolin hydrobromide. The drug is not recommended for cats. In dogs it is effective against *Taenia* spp., less effective against *Dipylidium caninum*, and useless against ascarids. It often leads to vomiting. B.G.P.

290—Tijdschrift voor Diergeneeskunde.

- a. BAUDET, E. A. R. F.—“*Aelurostrongylus abstrusus*, de longworm van de kat.” LX (18), 982-984. [1933.]
- b. BURGGRAAF, H.—“Bijdrage tot de kennis der Pancreasdistomatose bij het rund, veroorzaakt door *Eurytrema Pancreaticum* (Janson, 1889, Looss, 1907).” LX (23), 1277-1282. [1933.]

(a) Baudet contributes notes on clinical symptoms, diagnosis and life-cycle of *Aelurostrongylus abstrusus*.

The parasite occurs fairly frequently in cats in Holland. A cat which passed very numerous larvae in its faeces and died probably as a result of this infection showed no pulmonary symptoms. A brief account of the morphology and life-cycle as described by Cameron is given. Attempted infection of twenty mice with larvae from the lungs and alimentary tract of the cat was unsuccessful for an unknown reason. H.M.

(b) Burggraaf describes the morphology of, and the macroscopic and microscopic lesions due to, *Eurytrema pancreaticum* parasitizing the pancreas of cattle in Japan, Cochinchina, Tonkin, Malay States, Java, India, Brazil and Sumatra. From the latter country 16 cases provided the material for this pathological study.

The lesions involve dilatation of the larger pancreatic ducts with thickening and mucosal proliferation, and hyperplasia of the glandular tissue. Necrotic foci, containing eggs of the worm, may occur. H.M.

291—Transactions of the American Microscopical Society.

- a. NOBLE, A. E.—“Two new trematodes from the American coot.” LII (4), 353-359. [1933.]
- b. BECKER, E. R.—“Two observations on helminths.” LII (4), 361-362. [1933.]

(a) Noble gives succinct descriptions of *Catatropis pacifera* n. sp., and *Cyclocoelum microcotyleum* n. sp., from the American coot *Fulica americana*. R.T.L.

(b) Becker illustrates an egg of *Syphacia obvelata* containing two living, motile *Trichomonas muris*. He reports the cessation of egg production in *Hymenolepis nana* and *Syphacia obvelata* when the rats observed were placed upon an exclusively whole milk diet. R.T.L.

292—Veterinary Record.

- a. PILLERS, A. W. N.—“Notes on parasites in 1932.” XIII (40), 964-966. [1933.]
- b. PURVIS, G. B.—“On the apparent non-pathogenicity of the trematodes *Eurytrema pancreaticum* (Janson 1889) and *Platynosomum concinnum* (Braun 1901).” XIII (42), 1063-1064. [1933.]
- c. PILLERS, A. W. N.—“Helminths of economic importance in farm animals excluding poultry.” XIII (45), 1160-1170. [1933.]

(a) Pillers records the parasitic and other forms which have been submitted to him for diagnosis during 1932. The more important helminths in his record are *Taenia saginata* from a human who had not been out of England; *Moniezia* (?) *expansa* from a giraffe; *Dithyridium elongatum* in large numbers free in the peritoneal cavity, mesentery, mesenteric lymphatic glands, pleural cavity, lungs and aorta of a fox (Cyprus); *Onchocerca cervicalis* from a case of fistulous withers (Staffs.); *Trichostrongylus tenuis* from partridges, apparently an important factor in disease production; and *Filicollis anatis*, reported to be the cause of death in ducks. J.N.O.

(b) A comparison is drawn by Purvis between the number of flukes of the genus *Eurytrema* found in the pancreatic duct in 34 bovines and the condition of the carcass. The conclusion reached is that these parasites are practically harmless. In the cat *Platynosomum concinnum* in small numbers produces hardly any appreciable change but when thousands are present there is marked thickening and enlargement of bile ducts. R.T.L.

(c) Piller's paper, which reviews the principal helminths affecting horses, cattle, sheep and swine kept under farming conditions in Britain, is illustrated by a striking series of diagrammatic representations of their life-cycles. The importance of liver fluke is illustrated by a quotation from the Report of the Chief Veterinary Officer for Birkenhead for 1931 in which it is shown that 14.84 per cent. of the livers of cattle were condemned at a loss of £1,950, and 4.01 per cent. of those of sheep valued at £37. General preventive measures consist of avoidance of overstocking and of permanent pastures. The value of soiling, mixed grazing, dosage before gestation, dry land and night housing, isolation of new animals, disposal of excreta, protection of food and water, effect of crop and cropper rotations, diet, and the destruction of worms and of intermediate hosts are discussed. R.T.L.

293—Wiener Klinische Wochenschrift.

- a. BADEL, A.—“Zur Frage der Häufigkeit der Trichinose beim Menschen.” XLVI (10), 302-303. [1933.]

(a) Badel here discusses the incidence of trichinosis in man in various parts of the world. Apart from cases diagnosed during life or found at autopsy after the patient has died from this disease, there must be a large number of sub-clinical cases that normally escape detection. The author quotes the results of systematic post-mortem examinations made by various investigators with the definite object of finding this parasite; they show an incidence of about 5 per cent. in many cases. The author examined 100 corpses in Vienna, however, and found them all negative. B.G.P.

294 Wiener Tierärztliche Monatsschrift.

- a. HENNEBERG, O. H. & BACHLECHNER, K.—“ Ueber die Abtötung von Trichinellen in Salamiwürsten. Experimentelle Untersuchungen.” xx (10), 350-369. [1933.]

(a) In Austria, pig-meat intended for use in Salami (Bologna) sausages is exempt from trichina-inspection. Henneberg and Bachlechner here show experimentally that this exemption is justifiable since the curing process is so prolonged that all *Trichinella* cysts are killed. By the 13th day of the smoking process the finely ground meat was not infective when fed to mice. They recommend a minimum curing period of 4 weeks, by which time the water content has been reduced to 40 per cent. and the salts have been concentrated to the following values : sodium chloride, 5 per cent. ; nitrites, 10 per cent. ; nitrates, 26 per cent. B.G.P.

295—Year Book. British Goat Society.

- a. MORGAN, D. O.—“ The effects of overstocking on the worm-infestation of goats.” pp. 24-25. [1933.]

(a) Morgan states that overstocking results in heavy mortality from helminth infection in goats kept experimentally on plots treated in accordance with the modern methods of grassland management and grazed rotationally. R.T.L.

296—Year Book. Horticultural Education Association.

- a. HODSON, W. E. H.—“ The control of chrysanthemum eelworm.” pp. 85-89. [1933.]

(a) Hodson describes symptoms of attack by *Aphelenchoides ritzemabosi* on chrysanthemums, gives an account of the life history of the pest and discusses varietal susceptibility and control measures.

As practical methods of control it is suggested that chrysanthemums should be withheld for one year from infested land and that pot-grown plants should be grown in clean soil and the pots stood on a fresh patch of land yearly. Regular fortnightly spraying with a soft-soap wash (nicotine 10 oz., soap 8 lbs. per 100 galls. water, or greater concentration with hard water) has also proved a commercial success but immersion of the washed stools in water at a constant temperature of 110°F. from 20 to 30 minutes according to size of the stools, followed by immediate cooling in clean water, is recommended as the only treatment by which infected nurseries can be cleaned. M.J.T.

297—Zeitschrift für Fleisch- und Milchhygiene.

- a. LOMMATZSCH, R.—“ Versuche zur Beschaffung von trichinösem Demonstrationsmaterial durch Infektion von weissen Ratten und Mäusen.” XLIII (9), 161-163. [1933.]
- b. BAURLE.—“ Die Stoppuhr im Dienste der Trichinenschau.” XLIII (15), 285. [1933.]
- c. MESSNER.—“ Bemerkung zu der Veröffentlichung von Dr. Lommatzsch : ‘ Versuche zur Beschaffung von trichinösem Demonstrationsmaterial durch Infektion von weissen Mäusen und Ratten ’.” XLIII (15), 285-286. [1933.]

(a) Lommatzsch describes some feeding experiments in which trichinous wild boar's flesh was fed to rats and mice, with the principal object of providing teaching material. Some rats and mice failed to acquire infections; others became infected but showed no symptoms. More than half showed marked symptoms, however, after 4 or 5 weeks. For storage purposes refrigeration at -5°C . has too desiccating an effect to be practicable; moreover unencapsuled larvae are killed by a fortnight's exposure to this temperature.

B.G.P.

(b) According to Baurle, 6 minutes are legally assigned to a single inspection of pig meat with a trichinoscope, this time including the cleaning of the compressorium and the entry in the record book. Meat inspectors have now been equipped with stop-watches to ensure that full time is given to each inspection [a single inspection includes the examination of a number of meat samples in the one compressorium].

B.G.P.

(c) Commenting upon the article by Lommatzsch [No. 297a above], Messner states that he finds guinea-pigs satisfactory for supplying trichinous meat for teaching purposes. A useful preservative, which allows of the meat being subsequently used in the trichinoscope, is weak glycerine to which is added sufficient phenol to prevent putrefaction.

B.G.P.

298—Zeitschrift für Immunitätsforschung und Experimentelle Therapie.

- a. WAGNER, O.—“Immunisierungsversuche bei experimenteller Askaris-Infektion der Maus.” LXXVIII (3/4), 372-382. [1933.]

(a) Wagner has shown that an immunity to ascaris infection can be acquired as the direct result of an early infestation.

Mice which had been previously treated with two or more doses of *Ascaris lumbricoides* eggs, were able to withstand to a large extent later infections, for very few larvae were able to migrate to the liver and lungs. A similar immunity was produced by treatment with dried and powdered ascaris material. All treatments were given orally.

P.A.C.

299—Zeitschrift für Parasitenkunde.

- a. SINITSIN, D. F.—“Studien über die Phylogenie der Trematoden. VI. The life histories of some American liver flukes.” VI (2), 170-191. [1933.]
- b. KRULL, W. H.—“Studies on the life history of a frog lung fluke, *Haematoloechus complexus* (Seely, 1906) Krull, N. comb.” VI (2), 192-206. [1933.]
- c. FREUND, L.—“Helminthenwanderungen. I. Teil Die Wanderungen und die “Passagen” der Nematoden im Wirtskörper. II. Teil. Die Wanderungen der Trematoden im Wirtskörper und vom Wirt zum Wirt.” VI (2), 243-268. [1933.]
- d. MAZHAR, A. K.—“On some parasitic nematodes of Aligarh district.” VI (2), 269-272. [1933.]

(a) Sinitsin here differentiates two new species of American liver flukes, and gives an account of the life-histories of these and of *Fascioloides magna*.

The new species, *Fasciola californica* and *F. halli*, are differentiated from *F. hepatica* by the distribution and form of the cuticular spines in the adults and by certain features in their life-histories. Thus *F. californica* has cercariae

and metacercariae slightly larger than those of *F. hepatica*, and is carried by *Galba bulimoides*. The *F. halli* sporocyst first produces "eggs," which are extruded through a posterior genital pore and which are destined to grow into daughter-sporocysts, and later produces rediae which remain within the mother-sporocyst until they are mature. The daughter-sporocysts also produce rediae. These rediae are muscular forms, with well-developed pharynx and gut, and they migrate in all directions—some out of the snail altogether. Those which reach the liver produce internally a second generation of rediae with weaker musculature and gut. The further stages are as in *F. hepatica*. The carrier is *Galba bulimoides techella*.

Thus the author disputes Stiles' theory that the American liver-fluke was imported from Europe, and denies that *F. hepatica* is found in America.

Fascioloides magna also develops in *Galba bulimoides techella*. The eggs have a cylindrical sub-terminal appendage and take 33 days to hatch. The development is similar to that of *F. hepatica* but takes longer. The second rediae produce 100 or more cercariae each.

B.G.P.

(b) Krull redescribes *Haematoloechus complexus* (Seely 1906), n. comb., and gives a detailed account of its life history. The adult is parasitic in the lungs of frogs, *Rana pipiens* and *R. clamitans* (new host). The first intermediary is *Pseudosuccinea columella* and the second intermediary is the nymph of any of the following dragonflies: *Sympetrum vicinum*, *Pachydiplax longipennis*, *Holotania (Libellula) incesta*. The cercariae reach the respiratory organ of the dragonfly nymphs by way of the anus during respiration.

B.G.P.

(c) Freund brings together numerous data on the migrations of helminths; first on the "Passage" of nematodes in the host's body (he prefers the term "Passage" since, for a great part of the routes traversed, the nematode is passively carried by the blood stream), and secondly on the migrations of trematodes, in the host's body, and also from one host to another during development.

He does not accept Fülleborn's view that the migrations of ascaris and hookworm larvae are a recapitulation of a phylogenetically earlier life-history involving an intermediate host. He sees the "blood-bath" rather as a physiologically favourable environment, escape from which is (usually) necessary merely so that eggs shall reach the outside world and so infest new hosts. A survey of known nematode life-histories shows that most larvae enter the blood stream in the intestinal wall and leave it again successively at different points, according to the species and its histotropism. Thus, of the species of *Capillaria*, *C. hepatica* becomes adult and oviposits in the liver, *C. aerophila* in the lungs, *C. baskakowi* in the oesophagus, other species in the intestine. Apart from this principal route, *via* lungs to intestine, some routes involve a return to the heart and thence by the systemic circulation, as in *C. plica* adult in the bladder wall, or *Strongylus vulgaris* which reaches the intestine again *via* the mesenteric artery. A simplification is seen in those species which merely have a short larval stage in the intestinal wall (*Oesophagostomum*), and in those which never leave the lumen.

In the second part the trematodes are similarly considered, but here information is not sufficiently complete to draw up a comparable scheme. The numerous types of life-history in this group are also reviewed. B.G.P.

(d) Mazhar describes *Numidica alata* n. sp. from the small intestine of the Indian fox, *Vulpes alopecurus*, and differentiates it from the only other species, *N. numidica*. There is also a redescription of *Diplotritaena tricuspidis* and a brief note on *Setaria labiato-papillosa* which is described as parasitizing *Bos indicus* very heavily in the Aligarh district. B.G.P.

300—Zeitschrift für Veterinärkunde.

- a. GOGOLKA, K. H.—“Über den Befall und die Behandlung von Sklerostomenpferden.” XLV (10), 384-392. [1933.]
- b. SEEHAWER.—“Über die Bekämpfung der Sklerostomiasis der Pferde.” XLV (11), 406-422. [1933.]

(a) Gogolka considers that the clinical significance of sclerostomiasis in horses has been underestimated, and that it may be associated with colic. 207 horses were examined, egg counts from sifted stool being made three times a day for three days. The horses were examined at varying ages, maximum infection occurring in the 3rd and 4th year.

The writer quotes Poeppel's case of verminous aneurysm in a 10 days' old foal as possible evidence of prenatal infection but the new-born foals which he examined were worm-free and apparently become infected through straw contaminated with the faeces of the infected parent. He concludes that sclerostome infection is not normally acquired until the end of the first year. The earliest observation of clinical symptoms was in 2 year old foals. Intensity of infection, as estimated by egg counts, does not vary with the time of the year or the time of day; but the external environment, e.g., type of pasturage, etc., influences the infection considerably and country horses are more extensively infected than town horses.

Horses were successfully treated with carbon tetrachloride given in conjunction with intravenous injection of antimony tartrate, while Neo-Salvarsan gave still better results. S.G.S.

(b) Seehawer has been investigating the efficacy of various anthelmintics against the sclerostomes of horses.

Only the adult worms are amenable to treatment by ordinary anthelmintics given *per os*. The author has therefore injected numerous antimony compounds into infested foals. Antimosan, Stibosan and certain commercial solutions of antimony in both its trivalent and pentavalent forms [composition not stated] were tried, but all were found to be inferior to tartar emetic and to be of negligible significance in the control of sclerostomes.

Carbon tetrachloride and tetrachlorethylene were also tried, given through a nasopharyngeal sound, by which method the toxic symptoms usually associated with these drugs were avoided. Tetrachlorethylene, although a valuable remedy for ascarids and gastrod larvae, was found to be practically useless against sclerostomes. Carbon tetrachloride, on the other hand, gave good results especially when combined with intravenous injections of tartar emetic. The author discusses the macroscopic appearance of the gut in infested horses and gives tables showing body-weights and egg-counts before and after treatment. B.G.P.

301—*Zeitschrift für Zellforschung und Mikroskopische Anatomie.*

- a. CHITWOOD, B. G. & CHITWOOD, M. B.—“The histological anatomy of *Cephalobellus papilliger* Cobb, 1920.” XIX (2), 309-355. [1933.]

(a) Chitwood and Chitwood describe the histological anatomy of *Cephalobellus papilliger*, a parasite which occurs in larvae of scarabeid beetles of the subfamily Rutelinae.

The cellular formations of the anterior end of the body were found to coincide for the most part with those in *Oxyuris equi* and in a species of ascarids in which these structures have been investigated. A membrane containing nuclei covered and held in position all organs within the body cavity and the intestine was found to contain a relatively large amount of fatty substance indicated in preparations fixed in osmic acid. The posterior part of the intestine was observed to be covered by longitudinal and circular muscles. This fact has been known at least since 1916 (Martini) but has not been generally accepted. The various stages in the formation of secretion in the vas deferens are also described. “X” bodies, peculiar two-celled organs found in the body cavity of both sexes, appear to be constant and to have some indirect connection with the reproductive system. They are not characteristic of *C. papilliger* but are present in other nematodes and although their function is unknown the authors suggest endocrine activity as a possible one.

J.N.O.

302—*Zentralblatt für Bakteriologie. Abteilung I. Originale.*

- a. MAASS, Z. J.—“Ueber Eosinophilie im Schweineblut bei Trichinose.” CXXIX (1/2), 29-34. [1933.]

(a) Maass gives the results of daily blood examinations of 9 pigs, 8 of which had been experimentally infested with *Trichinella*. The results show that an eosinophilia is produced which is maximal at about 3 weeks after infestation and which is roughly proportional to the intensity of infestation. The normal percentage of eosinophiles in the pig has been placed as high as 8; Maass finds it to vary between 0.5 and 4.5. In 2 pigs fed with 100 larvae the maximum eosinophilia was 10 per cent.; in 2 fed with 200 larvae, 12.5 per cent.; in 2 fed with 1,000 larvae, 20 per cent.; and in 2 fed with 5,000 larvae 27.5 per cent. There was an abrupt fall within the 24 hours after the maximum followed by a more gradual return to normal. Quantitatively, the leucocyte count was usually doubled within the first 3 weeks.

B.G.P.

303—*Zoologischer Anzeiger.*

- a. ALLGÉN, C. A.—“Vorkommen und Häufigkeit frei lebender mariner Nematoden.” CIV (9/10), 253-256. [1933.]

(a) Allgén, in a discussion on the occurrence and frequency of free-living marine nematodes, refers to the experiences and observations of various authors from Bastian in 1865 to more modern investigators. He comments upon the scarcity of the worms in pure sand and on their extraordinary abundance and richness in genera and species from the vicinity of algal growths, *Zostera*-beds, corals, sponges and even in small quantities of mud dredgings.

J.N.O.